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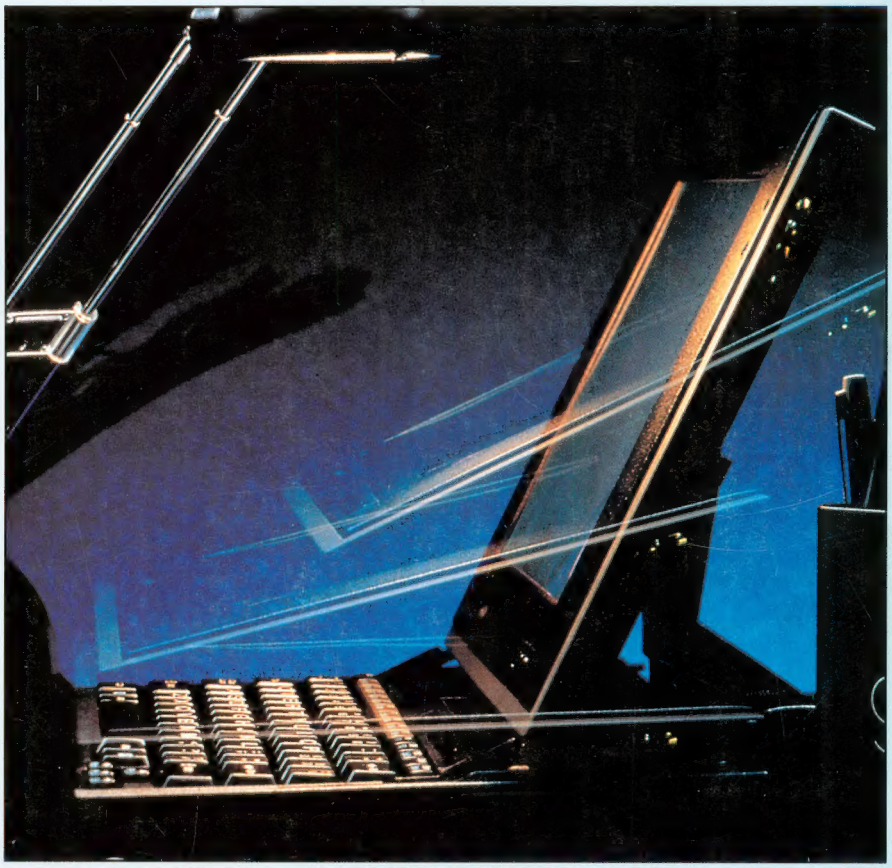

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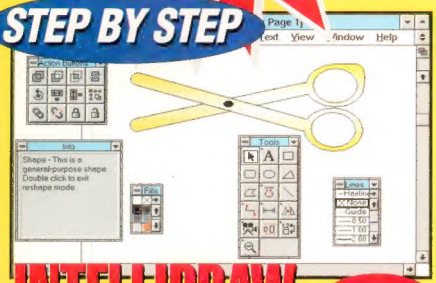

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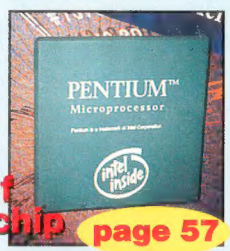

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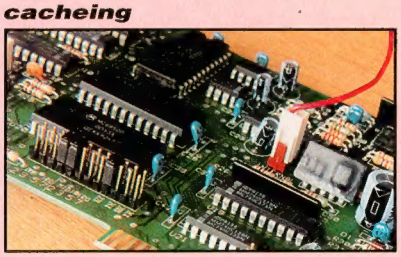

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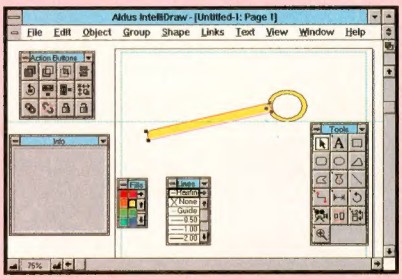

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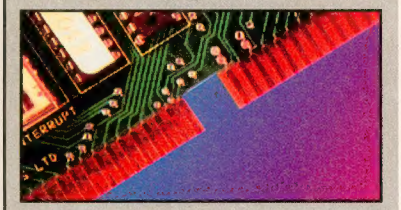

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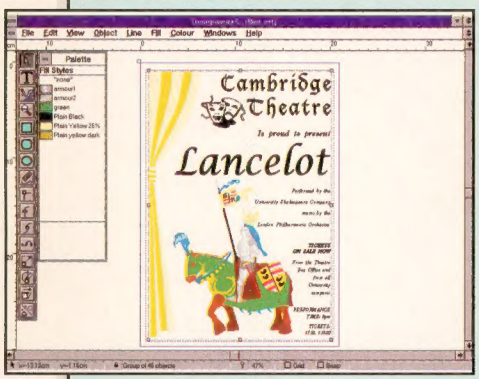

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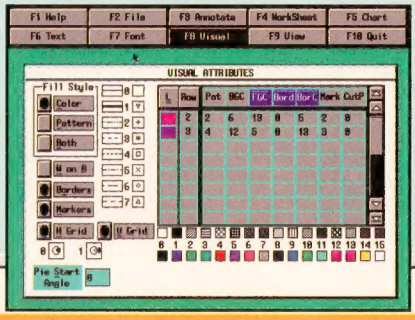

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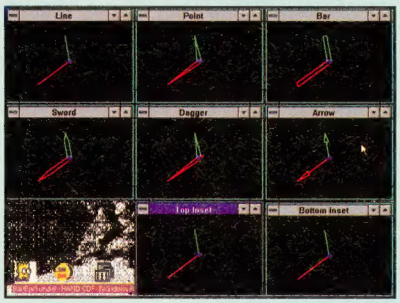

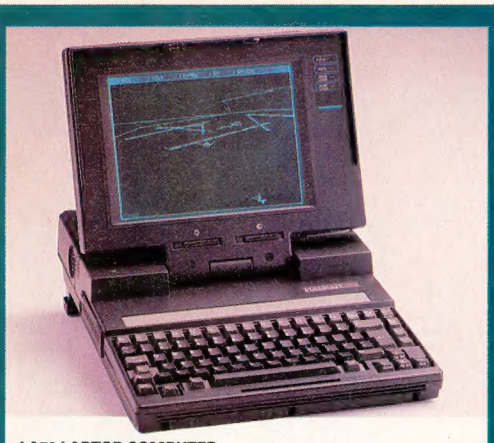

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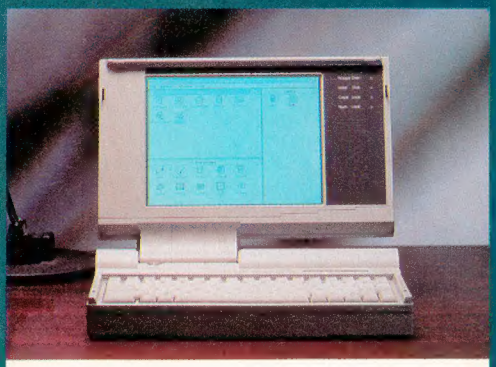

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REVIEW
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NEW PRODUCTS
GAMES

WHAT'S NEW IN THE PC WORLD

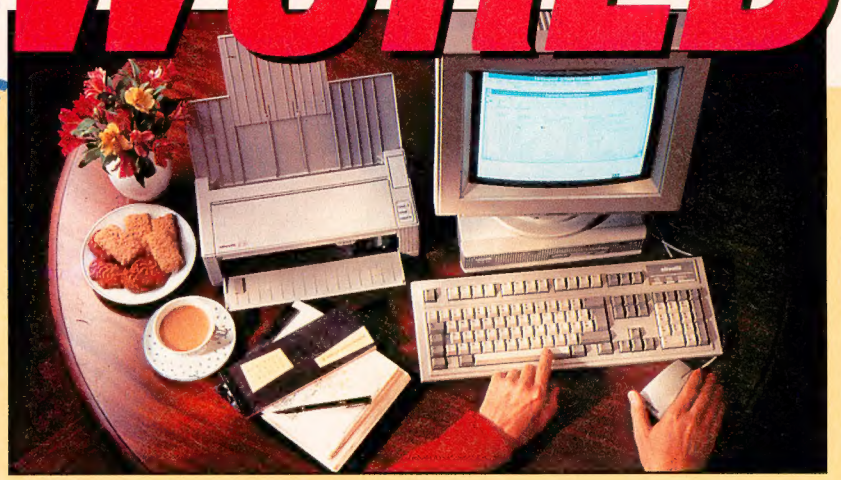
EPSON SCANNERS

Epson has launched a concerted campaign to bring desktop colour scanning to the masses with the launch of the GT-6500. Priced at £799 - roughly the price you pay for a black and white desktop scanner these days - the GT-6500 offers 24-bit colour scanning with output resolution of up to 1200 dpi. It can also handle line art and 256 greyscale images, optical character recognition and CAD drawings.

Epson is offering various software bundles with new the scanner such as Micrografx Picture Publisher for image editing or Caere Omnipage for optical character recognition. The machine comes with a standard Adaptec SCSI interface connection and all the usual drivers including a new TWAIN driver which should ensure that the GT-6500 works with just about any mainstream PC application. Options include a transparency adaptor for scanning overhead presentation charts and an automatic document feeder.

The company has also set up an advanced training facility at its headquarters in Hemel Hempstead to teach people how to get the best from a scanner. The courses include a general overview of scanning including image editing, OCR and document image processing as well as more detailed courses on specific application packages.

More information from Epson on (0442) 61144.



Olivetti and Mitac

As the smaller companies fall by the wayside (bye bye Ti'ko/PC Now and Orchard), it's the big-name brands people are turning to for a bit of security. Olivetti has decided to trade in on buyers' nervousness and has launched three new low-end additions to its popular PCS range. The entry level PCS 11 is a 386SX/16 model with 2MB RAM and 40MB hard disk. It comes with all the usual trimmings, plus a healthy dose of free software including MS-DOS 5.0, Windows 3.0, Norton AntiVirus, a disk doubler and a memory management utility. It's priced at just £599.

Olivetti has also followed an industry trend in providing one of what it calls its "Solution Series" starter packs free with every machine sold before Christmas. There was a choice between a Windows starter pack which has a spreadsheet, word processor, time management and translation software for general business use, or the Action Set which includes four games, a sound card, speakers and joystick. A third "multimedia" pack is due out soon.

Meanwhile, Mitac is hoping to lure the punters with a new range of PCs based around a built-in Western Digital graphics accelerator chip which the company claims can improve Windows performance in SVGA mode by as much as a factor of six. The modular range is also fully upgradable from the entry level 486/25 model priced at £949 to the 486DX2/66 which starts at around £1500.

More information from Olivetti on 081 785 6666 Mitac on (0952) 670370.

Rubycliff's New Disc Diary

Disc Diary has been developed by NAS Design and Rubycliff as an efficient way to carry up to six 3.5" floppy disks.

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3500(4)	486DX33	4	120	LCD•MONO	YES	640X480 32 GREY SCALE	2.7	£1499
3500.8.120	486DX33	8	120	LCD•MONO	YES	640X480 32 GREY SCALE	2.7	£1699
3500.8.210	486DX33	8	210	LCD•MONO	YES	640X480 32 GREY SCALE	2.7	£1819
3500.16.210	486DX33	16	210	LCD•MONO	YES	640X480 32 GREY SCALE	2.7	£2049
9350.2.120	486DX33	2	120	GAS PLASMA	YES	640X480 16 GREY SCALE	* 4.5	£1849
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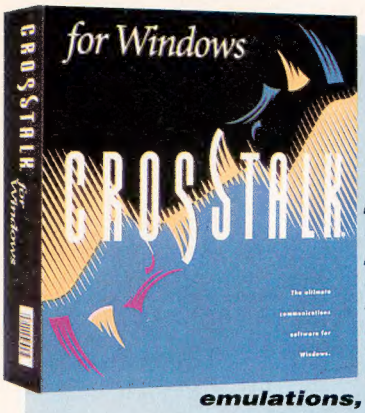

CROSSTALK FOR WINDOWS

A new Windows version of the popular communications package Crosstalk has arrived with a redesigned user interface and armed to the teeth with extra terminal emulations, file transfer protocols and a full version of Crosstalk's standard application scripting language.

Crosstalk for Windows 2.0 comes with several ease of use features including a "QuickBar" for accessing frequently used functions at the click of a mouse and the QuickPad, a customisable key pad utility which allows you to store scripts, frequently used key sequences and macros on a pad for simple point and click access.

Crosstalk also has the clever ability to open and run multiple communications sessions. This means you can be running, say, a complex script in one windows while editing some online information in another. Or you may want to be emulating two different kinds of computer at once. Crosstalk provides access and data exchange between virtually every kind of computer under the sun from the biggest IBM mainframe to the dumbest of terminals. As you can tell this is a very powerful piece of software, and aimed very much at the information professional. However, since it costs just £144, it's well within the reach of many a home user's budget.

More information from DCA on (0442) 231414.

PORTABLE PRINTERS

Printers are getting smaller and smaller these days. The new Canon BubbleJet 200, for example, is just 35 cm wide by 20 cm deep and weighs a mere 3 kg.

For such a small - and relatively cheap - machine it packs a mighty punch. For around £200, the BJ-200 offers laser quality 173 character per second printing (in high quality mode). It's quiet too running at about 40 dBA. There's a selection of eight typefaces shipped with the machine, plus a standard 80 sheet paper feeder. You can print on ordinary plain paper, company letterheads, envelopes or even overhead film transparencies. And the BJ-200 is now more reliable than its predecessors thanks to a new auto capping and cleaning system that prevents ink from clogging up the print head.

More information from Canon on 081 773 3173.

Freelance Graphics for Windows

Version 2.0 of the popular presentation package Freelance Graphics for Windows is out now and is meant to be even easier to use than any of its predecessors. Lotus has spent a lot of time and money on researching usability issues. The result is a product which bristles with features designed to make computing life easier.

The first major enhancement you'll notice is the QuickStart tutorial with an animated product introduction and five hands-one exercises. There's also 12 new SmartMaster presentation styles where you simply fill in the blanks on the slides and let Freelance do the rest. Lotus has also added new page layouts and chart types, organizational charts and text tables.

Scattered throughout the product are "tips" buttons to inspire you, plus preview facilities and browsing galleries. Support for multimedia is included in the product with capabilities for jumping to other pages, launching other applications and playing sound or movie files. Included are 32 transitional effects such as paintbrush, curtains or flying text.

The suggested retail price for Freelance is £415, but you should find dealers who are selling it cheaper.

More information from Lotus on (0784) 455445.

Safety Specs

In response to the EC Directive on good working conditions and practices for VDU users, Cabot Safety Ltd have developed an innovative range of spectacles specifically designed to improve eye comfort and vision whilst operating a VDU. Launched in November 1991 under the AOSafety brand, Cabot's Computer users' spectacles are fitted with coated polycarbonate lenses; they are available in prescription and non-prescription options, in blue for amber VDU displays and magenta for green screens. The magenta lenses cover 90 per cent of all known screen requirements.

By improving screen contrast Cabot Safety's computer users' spectacles provide optimum comfort and reduce eye stress. For more information contact Cabot on 0625 878320.

TRAIN TIMES AT THE TOUCH OF A BUTTON

BR has brought out its new electronic timetable.

Journey Planner's 3.5 inch disk contains the arrival and departure times for more than six million BR services operated by Network SouthEast,

The disk comes with an easy-to-follow manual showing how to load the program and a printed map of the BR network. The timetable is designed to run on IBM-compatible personal computers (386 or 486 MS DOS 4/5 systems with at least 4megabytes of RAM).

Journey Planners can be purchased on credit and charge cards by telephoning Freephone 0800 526306. They will cost £19.99 (including VAT) plus £1.40 for postage and packing.

REVIEW
QUICKIES
NEW PRODUCTS
GAMES

Touched Screen

The Perex TouchMate is a Force Sensing Platform less than 2 inches high onto which a monitor is placed. When the monitor is touched, whether by a finger, glove or stylus, the force of the touch causes a movement of the top plate of TouchMate relative to its base. Internal force sensors detect this movement in the x, y and z directions enabling TouchMate to accurately measure the location of the touch and the level of pressure exerted. It is on sale at £650. For more information contact 071 225 2455.

GOLD DISK INTRODUCES VIDEODIRECTOR FOR WINDOWS

Gold Disk Inc. has announced VideoDirector for Windows, priced £149. VideoDirector is an easy-to-use system that will give anyone the ability to edit their home or business video tapes quickly and easily. The VideoDirector user interface emulates the control panel of a VCR, providing all the push-button functions that video users are familiar with.

VideoDirector will ship with software and a simple VCR/Camcorder cable. The serial cable allows any VCR or Camcorder equipped with "remote", "Control-L" or "LANC" inputs to be used as a video "source". The cable also includes a universal "learning" infra-red (IR) controller, allowing the final tape to be recorded on any IR equipped VCR or Camcorder. No additional hardware is required.

The system allows the user to view his video tapes using the computer to control the camcorder and VCR. Any number of passages or "clips" can be selected, named and arranged in any desired order. Clips may be selected from one or more source video tapes. VideoDirector will then assemble the clips into an accurately edited final tape.

For more information contact Gold Disk 071 498 3275.

100+

Art Systems have added Artist Graphics' Winsprint 100+ Windows graphics accelerator board to their range of products.

Based on the S3 86C924 chip, it displays a 1024 x 768 non-interlaced resolution with 256 colours at 70Hz refresh rate. Alternatively, for vivid colour graphics, it can display 32,000 colours at the standard 640 x 480 resolution.The 100+ model features Panoramic View, Starting Block and Command Centre application interfaces, which are common to all Artist boards.

For Autocad users, the Winsprint 100+ provides the facility to position text and graphics on separate screens. It includes a Windows driver and Artists GT Express Professional, which offers more than 100 menus with Birds Eye View. The recommended retail price for the Windows version of theWinsprint 100+ is £495, and for the AutoCad version £695. Contact Art Systems Ltd 0602 431404.

CORELDRAW USER GROUP

A new multimedia package has been introduced by .CDR the CorelDRAW user group.

The Multimedia Grand Slam may fuel the growng interest multimedia. The pack contains a sound Blaster Pro card, Internal CD-ROM drive, Autodesk Multimedia Explorer, Amplified speakers and complimentary C-ROM disks.

Everything needed to expand into muiltimedia is contained in the one pack, which when purchased as the Grand Slam offers a saving of nearly £300 on retail prices.

The user group is fulIy endorsed by Corel and also offers support for many other packages including MS-DOS and Windows.

Contact 0533-374948 for more information.

MEMORY CARD UPDATE

This Autumn a wide range of new card based products were introduced. They span the range of memory devices available and include SRAM, DRAM, ROM and Flash all with the I/O devices. Each offers particular benefits for various applications. ROM is used extensively for software programs, while SRAM is used like a floppy disk for storing data, which can easily be read and overwritten. The SRAM card is the most widely used technology today due to its ease of use. While FLASH is more expensive it is still limited to relatively few PC sockets. However, this is expected to change over the next three years.

Compatibility between cards still needs to be addressed as the card software and with it the formatting and filing system can cause problems when using different manufacturers machines. The techniques for storing data on the card can differ from manufacturer to manufacturer and until a universal filing system is agreed upon, which is transparent to the end-user, acceptance of card technology will be difficult. Fujitsu has been in consultation with other PCMCIA members to try to resolve this problem. New non-volatile cards using Intel 28f00 series Flash and Fujitsu's latest Flash will be available in Q1 1993.

What needs are forecast for 1993? It is believed that the requirement for software programs on a card will increase dramatically. Obviously, memory densities will continue to grow, the 10MB Mask ROM card will shortly be joined by one using 16MBit Maskrom to increase the capacity to 20MB. Dual voltage cards 3v and 5v will increasingly become the norm as handheld machines try to keep power consumption to a minimum. Fujitsu expects that all of its cards will be dual operating voltage by Q3, 1993. For further information contact Fujitsu Microelectronics on 0908 [illegible]

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MODEL	CPU SPEED	14"COLOUR VGA (640x480)	14"SVGA (800x600)	14"XVGA (1024x768)
386SX-25	26MHz	£560	£575	£585
386SX-33 Cache	48MHz	£590	£605	£615
386-25	36MHz	£595	£610	£620
386-40 Cache	75MHz	£650	£665	£675
486SX-25	85MHz	£675	£690	£700
486-33 Cache	155MHz	£840	£855	£865
486-50 Cache	210MHz	£995	£1010	£1020
486-33 EISA	155MHz	£1395	£1410	£1420
486-50 EISA	210MHz	£1475	£1490	£1510

All systems complete with:

- 45Mb 24ms hard disk drive
- 1.2Mb or 1.44Mb floppy
- 1Mb RAM
- 2 serial, 1 parallel and 1 games port
- 102 key UK keyboard
- Baby AT style steel case with speed LED, keylock turbo and reset buttons

UPGRADES

120MB 16ms hard disk drive	add £110
210MB 15ms hard disk drive	add £225
Additional floppy disk drive	add £45
Additional RAM per MB	add £25
Mini tower case	add £10
Full tower case	add £60
DOS V5	add £45
Windows V3	add £45
MS compatible mouse	add £15
1 year on site warranty	add £50

(NB: any of the drivers/controllers listed below may be added)

PERIPHERALS

1.2MB 5.25" Floppy Disk Drive	£45
1.44MB 3.5" Floppy Disk Drive	£40
5.25" Frame Kit for 1.44MB Floppy Drive	£8
Goldstar 14" colour XVGA (1024x7680 28")	£190
Sampo 14" colour multi-sync (1024x768)	£245
Sampo 17" XGA multi-sync monitor	£695
VGA card 16-Bit 256KB	£35
VGA card 16-Bit 512KB (Trident)	£45
VGA card 16-Bit 1024 (Trident)	£65
Orchid Pro-Designer MCA 1024KB	£265
Orchid Pro-Designer IIx 1024KB	£190
TSENG chipset VGA card 1024KB	£125
Multi I/O 2S, 1P, 1G port	£18
102 Key UK extended keyboard	£28
AT style case with 200W PSU, LED etc	£70
Baby tower case with 200W PSU, LED etc	£80
Full tower case with 250W PSU, LED etc	£125

MOTHERBOARDS

80386SX-25	£90
80386SX-25 Cache	£110
80386-25	£115
80386-33 Cache	£145
80386-40 Cache	£155
80486-33 Cache	£375
80486-50 Cache	£525

CYRIX CO-PROCESSORS

(These are far faster than Intel devices)

80287	CX82S87-20	£70
80387SX	CX82S87-16KP	£80
	CX82S87-20KP	£80
80387DX	CX83D87-16GP	£80
	CX83D87-20GP	£90
	CX83D87-25GP	£90
	CX83D87-33GP	£90

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FUJITSU

MODEL	TYPE	SIZE	SPEED	FORM	PRICE
M2616ET	IDE	105MB	19ms	1x3.5"	£210
M2613ET	IDE	135MB	19ms	H/Hx3.5"	£279
M2614ET	IDE	180MB	19ms	H/Hx3 5"	£350
M2622ET	IDE	330MB	12ms	H/Hx3.5"	£650
M2623ET	IDE	425MB	12ms	H/Hx3.5"	£749
M26-24ET	IDE	520MB	12ms	H/Hx3 5"	£849
M2616SA	SCSI	105MB	19ms	1x3.5"	£220
M2613SA	SCSI	135MB	19ms	H/Hx3.5"	£279
M2614SA	SCSI	180MB	19ms	H/Hx3.5"	£369
M2622SA	SCSI	330MB	12ms	H/Hx3.5"	£649
M2623SA	SCSI	425MB	12ms	H/Hx3.5"	£775
M2624SA	SCSI	520MB	12ms	H/Hx3.5"	£850
M2263SA	SCSI	672MB	16ms	F/Hx5.25"	£950
M2266A	SCSI	1079MB	15ms	F/Hx5.25"	£1295

CONNER

MODEL	TYPE	SIZE	SPEED	FORM	PRICE
CP2044	IDE	42MB	28ms	1x2.5"	£205
CP3000	IDE	42MB	19ms	1x3.5"	£120
CP2064	IDE	64MB	19ms	1x2.5"	£220
CP30064	IDE	64MB	19ms	1x3.5"	£145
CP2084	IDE	84MB	19ms	1x2.5"	£275
CP30084	IDE	84MB	19ms	1x3 5"	£179
CP30104	IDE	120MB	19ms	1x3.5"	£235
CP3204	IDE	212MB	16ms	H/Hx3.5"	£360
CP30100	SCSI	120MB	19ms	1x3.5"	£239
CP3200	SCSI	212MB	16ms	H/Hx3.5"	£375

SEAGATE

MODEL	TYPE	SIZE	SPEED	FORM	PRICE
ST351A/X	IDE	42MB	28ms	1x3.5"	£115
ST3096A	IDE	89MB	15ms	1x3.5"	£175
ST3120A	IDE	107MB	15ms	1x3.5"	£195
ST3144A	IDE	130MB	15ms	1x3.5"	£225
ST3283A	IDE	245MB	12ms	1x3 5"	£445
ST2383A	IDE	338MB	16ms	H/Hx5.25"	£455
ST1480A	IDE	426MB	14ms	H/Hx3.5"	£840
ST2383N	SCSI	338MB	16ms	F/Hx5 25"	£745
ST1480N	SCSI	426MB	14ms	H/Hx3 5"	£825
ST4766N	SCSI	676MB	16ms	F/Hx5.25"	£995
ST47b7N	SCSI	676MB	12ms	F/Hx5 25"	£1115
ST41200N	SCSI	1.05GB	16ms	F/Hx5 25"	£1295
ST14600N	SCSI	1.42GB	16ms	F/Hx5 25"	£1740

MAXTOR

MODEL	TYPE	SIZE	SPEED	FORM	PRICE
7120A	IDE	130MB	15ms	1x3.5"	£239
7213A	IDE	213MB	15ms	H/Hx3.5"	£340
LXT340A	IDE	340MB	15ms	H/Hx3.5"	£645
LXT535A	IDE	535MB	12ms	H/Hx3.5"	£869
7120S	SCSI	130MB	15ms	1x3.5"	£249
7213S	SCSI	213MB	15ms	H/Hx3.5"	£389
LXT340S	SCSI	340MB	15ms	H/Hx3.5"	£659
LXT535S	SCSI	535MB	12ms	H/Hx3.5"	£879
XT8760S	SCSI	760MB	16ms	F/Hx5.25"	£1079
PO12S	SCSI	1.2GB	13ms	F/Hx5.25"	£1575
PO17S	SCSI	1.7GB	13ms	F/Hx5.25"	£1925

QUANTUM

MODEL	TYPE	SIZE	SPEED	FORM	PRICE
IMP52AT	IDE	52MB	17ms	1x3.5"	£139
IMP120AT	IDE	120MB	17ms	1x3.5"	£239
IMP240AT	IDE	240MB	15ms	1x3.5"	£435
IMP425AT	IDE	425MB	14ms	H/Hx3 5"	£795
IMP52S	SCSI	52MB	17ms	1x3.5"	£155
IMP120S	SCSI	120MB	17ms	1x3.5"	£245
IMP240S	SCSI	240MB	15ms	1x3.5"	£445
IMP425S	SCSI	425MB	14ms	H/Hx3.5"	£785

DISK CONTROLLERS

IDE 16-Bit HDD/FDD with 2S, 1P	£25
ST01 8-Bit SCSI HDD 1:1	£40
ST02 8-Bit SCSI HDD/FDD 1:1	£55
Adaptec 1542B 16-Bit SCSI Kit 1:1 all drivers	£199
16-bit ESDI	£145
Adaptec 1640 16-Bit MSA	£285
Adaptec 1740 EISA	£385
IDE Cache	£150
DPT EISA SCSI Cached Controller	£375

QUANTUM HARDCARDS

PLUS 52MB AT HARDCARD 9ms	£215
PLUS 105MB AT HARDCARD 9ms	£315

The above drives are for AT systems only.

TAPE STREAMERS

Wangtec 60MB Internal with card + software	£350
Wangtec 150MB Internal with card + software	£450

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VISA

News

HEALTH AND SAFETY

On page 8 of the January issue of Practical PC, under the heading "Health Laws", we used a picture of an Amstrad monitor to illustrate the article. We wish to make it clear that there is no implication to be drawn that Amstrad monitors could be banned or are in any way unsuitable for use under the new health and safety regulations. Amstrad PC's and monitors fully conform to all UK and EC safety specifications.

TopLevel Tests The Market For Complete Works

As a marketing test TopLevel is offering readers a free full working model of their new CompleteWorks, six application integrated package for Windows. Rather than simply giving a computerised sales presentation the model will let readers try out Complete Works for themselves.

The idea has come about because many customers want to be able to try before they buy rather than just reading a brochure or watching a "movie-style" demo disk.

The models will enable readers to prepare, preview and print letters and reports, use the 800,000 synonym thesaurus and 115,000 word spelling checker, open large spreadsheets and test the full range of functions including formulae, recalculation speed, split screen windows and font mixing. They can prepare charts, embed them in documents, use the database to prepare a short mailing list, try out the automatic duplicate detection and print letters and forms. Best of all they'll be able to try the form design and form filling applications that make Cor Works unique. The only thing the model w t do is save new work. Request your Complete Works model now, whilst it's still free, by calling 0453 753955.

My mate Videomate

Imagine Graphics Ltd. announced the launch of the VIDEOMATE television and video adaptor for use with all VGA based PCs. Now one common monitor can be used to display these two very different sources of information. The VIDEOMATE is priced at just £269 + VAT.

The VIDEOMATE, model JV-81 9PT, is a real time video standards converter using the latest in microprocessor technology to change a low resolution, interlaced, composite PAL signal to a high quality, non-interlaced, VGA RGB signal.

The VIDEOMATE provides PC users with the ability to display TV and video signals on any standard VGA, SuperVGA or autosync colour monitor. Sound is also provided by an audio amplifier and built-in speaker. The user simply switches between TV/video and a standard VGA PC display allowing the PC to carry on processing data or compiling a program while the user watches TV or video.

***A comprehensive infra-red remote control is provided allowing users to automatically or manually tune and store up to 41 UHF and VHF/cable TV channels, switch to a video source such as a VCR or camera, adjust colour, contrast, brightness and volume - just like a modern,sophisticated TV set. An on-screen display shows all these functions plus time of day and on-off timer. Photograph shows the VIDEOMATE, with IR remote control, displaying a PAL TV signal on a standard colour VGA, autosync monitor* For further details contact: Imagine Graphics Ltd, 0727 830638.**

FAMILY DOCTOR

Creative Multimedia Corporation announced a new PC version of The Family Doctor, CMC's best-selling home medical guide on CD-ROM.

The new version features additional information and operates within the Multimedia: Personal Computer (MPCOR) specification, which includes Microsoft Windows.

The most significant feature of the MPCOR version is the illustrated human anatomy. This provides three different views of five different body systems: muscuiar and skeletal, digestive, respiratory and circulatory, urinary and reproductive, and nervous. While viewing the illustrations, the user can also call up voice-over pronunciations of 250 body systems and parts, and supporting text explaining the significance of particular portions of the anatomy. To hear how the word 'femur' is pronounced, for example, the user merely clicks the mouse button when the cursor is over that portion of the anatomy. Clicking the mouse activates explanatory text. All relevant images and text in the entire work are linked to the anatomy by body part.

The new Family Doctor also features updated information. Nearly 500 items have been added to the Question and Answer section giving advice on almost 2.000 of the most commonly asked health questions. Almost 300 color illustrations simplify explanations, and a glossary of more than 100 medical terms provides valuable reference information. Other reference capabilities include comprehensive data on more than 1,600 prescription drugs, and health update booklets and local and national resource listings and support groups.

The MPCOR interface enables the user to access the information in The Family Doctor in a more natural, integrated manner that is complemented by the expanded content of the disk.

The suggested list price for the new version of The Family Doctor remains at $79.99. To order The Family Doctor from CMC, call 0101-800-776-9277.

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The expertise and knowledge you will gain when you build your own PC with Olympian means your service engineer is always at your fingertips.

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Mono VGA monitor	Colour SVGA monitor	Colour SVGA monitor
£450.00 + VAT	£698.00 + VAT	£1078.00 + VAT
£528.00 inc. VAT	£820.00 inc. VAT	£1266.00 inc. VAT

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WHAT PERSONAL COMPUTER

Olympian Computer Systems are currently organising twice weekly workshops allowing you to assemble your own computer. The Knowledge gained and after sales support allows you to upgrade and maintain your PC....SAVING YOU MONEY. You will be assisted fully and provided with a free comprehensive construction manual. Components can be delivered as a complete kit including the assembly guide. This innovative idea is the new and informed way to buy a PC. Olympian are the first company providing regular workshops in DIY computing in the UK, call today for more information. Dealer parts and systems enquiries are also welcome.

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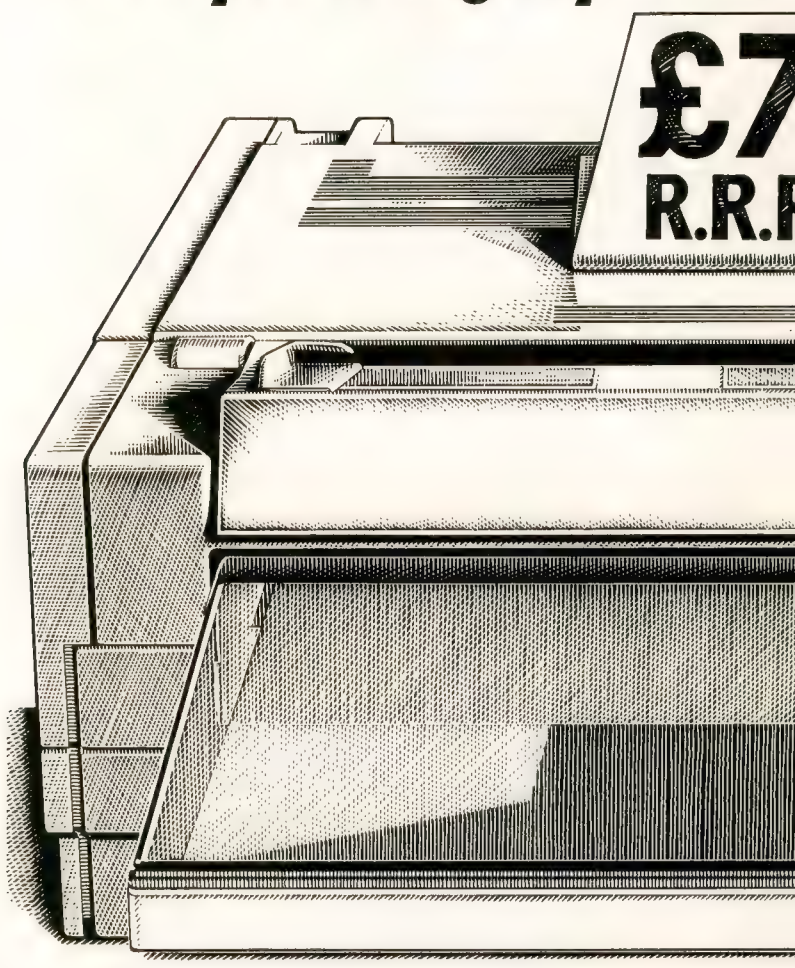


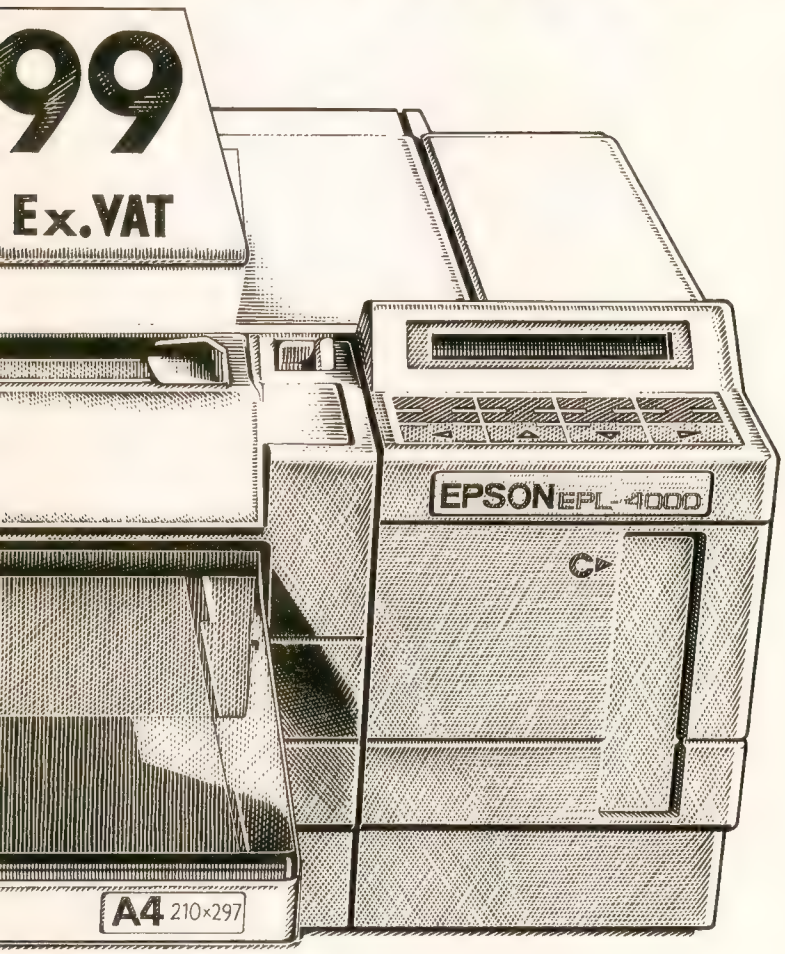
It's true. With Epson's brilliant new EPL-4000, you too can join the happy band of people with beautifully printed documents. And you can bet you've paid less for the pleasure than they have. After all, lasers with the sort of outstanding features the EPL has don't usually come cheaper than £1,000.

Buy a more expensive laser, and you might get 6 pages per minute performance, rich solid black type and a year's on-site service, free. Then again, you might not. But buy the EPL-4000 and you get all the above PLUS Epson's MicroArt Printing and fine grain Microtoner (for razor sharp characters) PLUS a big smile when you compare the price you paid to what the "smart guys" paid for their laser.

Then there's the EPL's additional LQ/FX compatibility – if you've been using an Epson or Epson compatible dot matrix printer,

ourself.

dn't afford a laser printer.)



with a push of a button you can use the EPL straight away, without messing about changing the printer drivers in your application software.

It's compact. A 479x362mm footprint means it's unobtrusive even in the smallest office and its handy paper cassette holds 100 sheets.

Why not ring 0800 220546 for our free handy guide "What you should know before buying a laser printer" and the address of one of our nationwide network of dealers? And get quoted a special price that won't leave you pinching pennies.

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A TOP 10 PC MANUFACTURER

Over 8500 readers told PC Magazine what they thought of 35 of the top PC manufacturers in a 1992 Service & Reliability Survey. DTK scored AHEAD of Tandon, NEC, Toshiba, Hewlett Packard, Epson, Dell, NOR.

DTK	386SX25, 2MB RAM, 3.5" FLOPPY 40MB HDD, SVGA COL MONITOR	£549
DTK	386DX33, 4MB RAM, 3.5" FLOPPY 40MB HDD, SVGA COL MONITOR	£649
DTK	486DX33, 4MB RAM, 3.5" FLOPPY 80MB HDD, SVGA COL MONITOR	£749
DTK	486DX33, 4MB RAM, 3.5" FLOPPY 100MB HDD, SVGA COL MONITOR	£949

DOS 5 £29, WINDOWS 3.1x £39, MOUSE £9.99

COMPLETE OFFICE SUITE

IBM Comp 386SX33
3.5" Floppy drive
40Mb Hard disk
Super VGA colour monitor
MS DOS 5.0
PLUS
Samsung dot matrix printer
(300cps & Near Letter Quality)
AND
FREE Lotus software worth £149.00 rrp:
Spreadsheet
Database
Word processor
Total RRP of £2,300 for just £699!
Includes all cables and is ready to run.

£699

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Hyundai IBM comp PC, 5.25" Floppy drive, 20Mb Hard disk.
Mono monitor, M5 DOS 4.01
PLUS
Samsung dot matrix printer
AND
FREE software worth £179.00 rrp:
Ashton Tate's First Framework
Word processor
Spreadsheet
Database
This complete and ready to run package is an ideal first system

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TCL 386DX33

check this price & spec against other manufacturers and see how well we compare

Check Spec.

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128Kb cache, 4MB RAM,
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Speed	25MHz	33MHz	33MHz	25MHz	33MHz	50MHz
Cache	N/A	64Kb	64Kb	N/A	256Kb	256Kb
User Memory	2Mb	4Mb	4Mb	4Mb	4Mb	8Mb
Floppy Disks	1.2 + 1.44	1.2 + 1.44	1.2 + 1.44	1.2 + 1.44	1.2 + 1.44	1.2 + 1.44
I/O ports	2 serial 1 parallel	2 serial 1 parallel	2 serial 1 parallel	2 serial 1 parallel	2 serial 1 parallel	2 serial 1 parallel
Graphics Card	1Mb SVGA	1Mb SVGA	1Mb SVGA	1Mb SVGA	1Mb SVGA	1Mb SVGA
14" Monitor	colour 1024x768	colour 1024x768	colour 1024x768	colour 1024x768	colour 1024x768	colour 1024x768
MS- Dos	Version 5	Version 5	Version 5	Version 5	Version 5	Version 5
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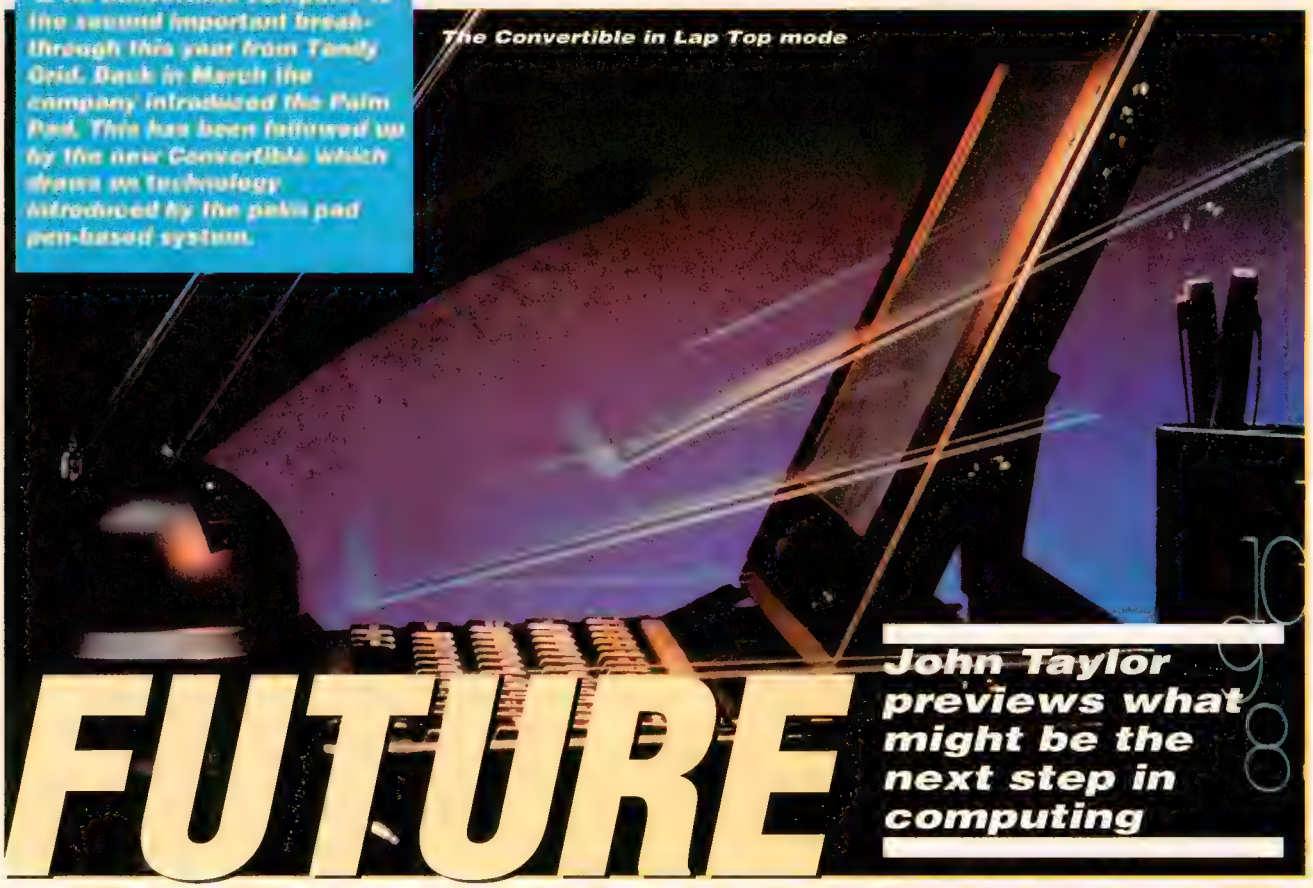
Tandy/Grid Convertible Preview

The Convertible computer is the second important break-through this year from Tandy Grid. Back in March the company introduced the Palm Pad. This has been followed up by the new Convertible which draws on technology introduced by the palm pad pen-based system.



FUTURE COMPUTING

John Taylor previews what might be the next step in computing

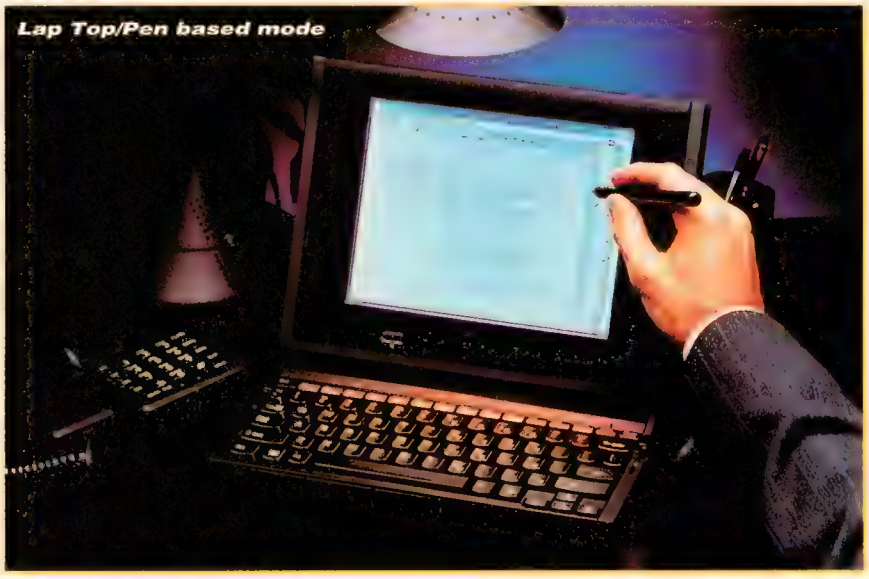
Tandy Grid has formed strategic partnerships with many software companies including Microsoft. This ensures a good selection of pen-based software for the new Convertible. The keyboard allows the use of all existing application software and Windows for Pens enables you to use the new and innovative pen-based applications

Bill Gates the chairman of Microsoft told me that "Microsoft and Tandy Grid had been working together on all sorts of industry advances," and "we have been working together on this one for quite sometime". Bill Gates went on to say, as indeed he might, that the Tandy Grid Convertible is a perfect match for Windows for Pens and that it will be a very successful product.

Well what does that mean for the readers of *Practical PC*? The answer is not a lot. Pen-based products are still in their infancy and with a price tag of £2700 I can't recommend readers to rush out and buy this machine yet.

So why am I telling you about the Tandy Grid Convertible? Well, I believe that the pen-based system is the future of computing and that the keyboard will still be needed. The Tandy Grid Convertible has both keyboard and pen and is, therefore, a real break-through and the forerunner of a whole new generation of computers.

The Tandy Grid Convertible is a 25 MHz 386SL notebook computer that comes



Pen-based mode

standard with 2 megabytes of RAM expandable up to 20 megabytes. It comes with a Maths Co-processor and a 125 megabyte hard drive and is encased in magnesium. It has an industry standard expansion slot and a attachable 3.5" 1.44 megabyte floppy drive. It comes bundled with Microsoft Windows for Pens, DOS 5.0, and a version of Slate's spreadsheet as standard. The system has a back lit VGA screen, the screen is protected by a sheet of tempered glass and measures 27cm diagonally with a resolution of 640x480 pixels. The system uses a 400 dots per inch Logitec digitiser board and cordless pen.

Finally, the most unique feature of the convertible is the ingenious implementation of the keyboard which is concealed beneath the hinge spring screen. What all this means is that the Tandy Grid Convertible embodies some of the latest technology available today in both notebook and pen computing. The Notebook measures 11.5" x9.3"x 1.5" and weighs 5.5 pounds.

The battery that comes with the Convertible has over two hours of life. It's a small battery but there is also an optional larger, extended battery that is about 60 per cent longer in life. It can be charged both on and off the system the recharge time on the battery is 1.5 hours.

The Convertible is a solid, well-built machine; small and light enough to be carried in a brief case. It is truly a mile stone in computing.

FAX BOX

- **Product:** Tandy Grid Convertible
- **Price:** £2,700
- **Publisher:** Tandy Grid Europe
- **Tel:** 081 897 6565

✓ Size, weight and the idea

✗ Expensive, short battery life

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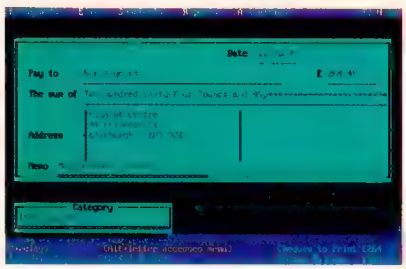

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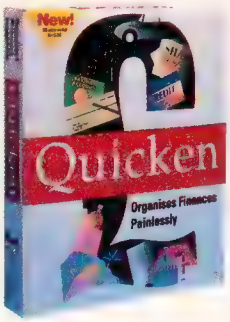

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Crofton 386-40

There are certain criteria, aside from benchmarks and speed tests, that are vital to anyone's view of a PC. Not least of these is the quality of the monitor. It doesn't take too long in front of a grotty display that flickers and wobbles before you have a blinding headache, and yet so many PC users and buyers seem content to specify a blisteringly fast machine and then make do with a less than wonderful monitor. That's a mistake that can damage eyesight and fray even the most placid of tempers.

The same sort of criteria apply to keyboards and mice - a keyboard that is uncomfortable for you to use leads to a reduction in productivity and may even cause Repetitive Strain Injury. So monitor quality and keyboard comfort are, or should be, well up on the reviewer's list of priorities, no matter how subjective any opinions on them may be...

Jo Lawton examines the Crofton Micro Systems 386DX40 PC

ROARING 40's

Beauty is, as they say, in the eye of the beholder. What I find attractive may look ugly to you, and vice versa. Acceptable build quality seems also to be as variable. What I find acceptable may be bordering on perfect to you, so it's a real pleasure to review a machine that has had some attention paid to its construction, even though it is an assembled clone, rather than a ground-up designed piece of kit.

Lest you feel that the term 'assembled clone' is derogatory, let me explain. It is all too simple to gather together the bits required to make a PC that works. It is less simple, and more time consuming, to scour the marketplace and find items of better than average quality that combine well, and then put them together to produce a machine that almost anyone would be proud to own.

Crofton Micro Systems seems to have taken the more time consuming route in specifying the constituent parts of the machine under the microscope, its 386DX 40MHz desktop.

The assesment of build quality rests on a number of factors: do the expansion slots on the motherboard line up correctly with the corresponding support rails of the case; are disk drives correctly secured and flush with the casing; do they have any unsightly gaps around them; are case facilities used for mounting serial and parallel ports; and, are wiring looms adequately secured, out of harm's way? Above all, does the inside of the machine look as neat as the outside? The Crofton machine rates as average. One motherboard retainer had missed its keyhole slot but still maintained adequate support, whilst the rest of the build was acceptable. The whole assembly rests in a case complete with holes for serial and parallel ports, which have been used to mount the two serial ports offered by the multi-i/o card. Each port is labelled clearly and is securely mounted to the chassis. The cover is attached by three cross-head screws, each of which, unusually, is fitted with a fibre washer which has prevented the silvering often seen around the holes in the top. Overall, the processor unit is firm and stable.

Aesthetics

Whether you find vertically mounted disk drives attractive or not is up to you. My preference is for horizontal mounting, and I harbour the suspicion that a vertically mounted drive is more prone to faults than its horizontal counterpart. That said, the aesthetics of the case design are not compromised by the drive, and it, at the very least, isn't occupying a 5 1/4" drive bay, a practice that can be awkward. The look of the machine is actually quite pleasant, with its interesting bulge to the left of the facia housing a large power button (push to latch type) and well placed and labelled reset and turbo switches, as well as a neat array of indicators and the LED speed display. The keyboard lock is also well placed at the bottom centre of the facia below the 3 1/2" drive.

The whole kit is topped off by the CG&A SVGA monitor, which is a very close colour match to the processor unit, and is our next port of call.

Monitor

I haven't yet come across this make of monitor, and was a little suspicious of it as I unpacked it from the box. The tilt and swivel stand that accompanies it comes as an assembly of three parts - not that it's likely to need the problem solving skills of a Krypton Fator contestant to put it together - which puts off that moment when you boot the machine for the first time for a short while. The monitor's controls are all front mounted, the contrast, brightness and power switch to the right, and the less used controls - pincushion distorion, vertical height, horizontal and vertical positioning and horizontal phase - are hidden behind a drop down panel to the left. The lead to the VGA card is of the captive

variety, which is perfectly acceptable in a desktop machine, but may cause a few challenges when allied to a floor-standing case.

At 640x480, the monitor is pin sharp and very stable, with a minute drop off towards the outer edges of the screen, which is normal in rounder bumpier tubes (as opposed to flatter squarer Trintron tubes). At 1024x768, which the monitor handles in interlaced mode, there is no discernable flicker, probably due to a longer persistence phosphor. Whatever the reason, it's welcome, and means that the monitor is usable for longer periods than might otherwise be the case.

Due to the accessible controls, adjusting the monitor to cater for personal preference is easily done, and there is no tendencey for settings to wander. All in all, it's an excellent little 14" monitor, and is, I'm told, being sold separately at a very good price, under £200, in fact.

Fingers

Keyboards, as I have discussed before, are subjective things. You either like them or hate them, and Crofton might have read all about my own keyboad preferences, as this one fits the bill exactly. It's light, with excellent feedback and a good length of key travel, and adjusts to just the right slope for my typing style. It has a solid build, and could well last longer than the six months most keyboards seem to last on my machines.

The supplied mouse is more or less a freebie, thrown in to get the user started. It's an IMSI unit, perfectly adequate for occasional use, but like keyboards, not to everyone's taste. A colleague of mine has had one in use for a long time, and swears by it, and I must admit it is not unpleasant to use.

In use

The machine's scores on the PC-ometer show that it is no slouch. It seems to get a better rate of video out of the VGA card than other machines equipped with the same card have managed, but, conversely, has come out slightly worse than I would have expected in data transfer speed for its hard disk.

Overall, its performance ratings mark it an ideal machine to run Windows 3.1 and its applications, and its 4MB RAM is a good complement for that. Expanadability is good - the motherboard having two 8-bit slots and four 16-bit slots free for cards, and two half height 5 1/4" drive bays free - a prime contender for upgrading to full MPC specifications,
perhaps?

It performs very nicely under actual use conditions, away from benchmark tests and using real world applications. Under Windows, its performance belies its speed and processor, and it feels only slightly slower than my own 33MHz 486 machine, which can't be bad.

Overall, then, this is a desirable PC with attention having been paid to the areas that matter most to the regular user. Its monitor's capabilities belie its low cost, and the keyboard is a joy to use. One has to assume that the minor problem with the motherboard mounting pillar is a one-off mistake, in which case Crofton has produced a quite desirable machine at a price that won't break the bank.

FAX BOX

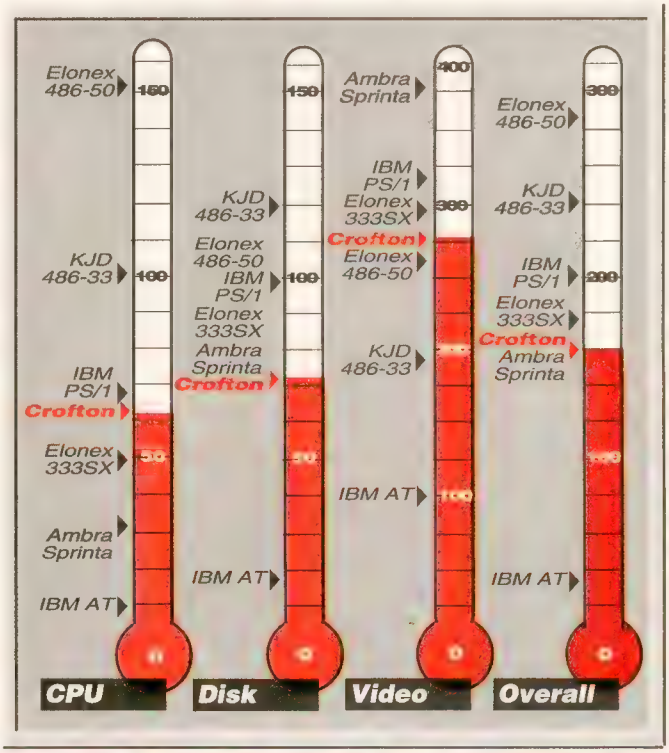
- **Product:** Crofton 386-40
- **Price:** £889 + VAT + P&P
- **Publisher:** Crofton Micro Systems
- **Tel:** 081 469 3246

✓ A well built and attractive machine

✗ Vertical orientation of the 3 1/2' disk drive

SPECIFICATIONS

CPU	80386	STORAGE	
Clock Speed	40MHz	Floppy Disk	1x1.44MB 3 1/2"
Case	Desktop		1x1.2Mb 5 1/4"
Memory	4MB	Hard disk	106MB seagate
Cache Memory	128k	GRAPHICS	
		Monitor	14-inch SVGA
PORTS		Adapter	Trident 8900c
Serial	2	Extras	MS-DOS 5.0,
Parallel	1		Windows 3.1
Keyboard	IBM		Microsoft Mouse



CPU Speed
A measure of how fast the central processor actually works - it takes into account all manner of computations.

DISK Speed
The data transfer rate is what is measured here. In other words, how many bytes of data per second are moved from hard disk to memory. The higher the better.

Video Speed
It takes time to create the picture you see on screen. This PC-ometer shows you how fast the video circuitry in the machine works.

Overall
We take the three ratings - CPU, DISK and VIDEO and combine them to get an overall performance mark. The higher on this scale, the better the machine performs all round.

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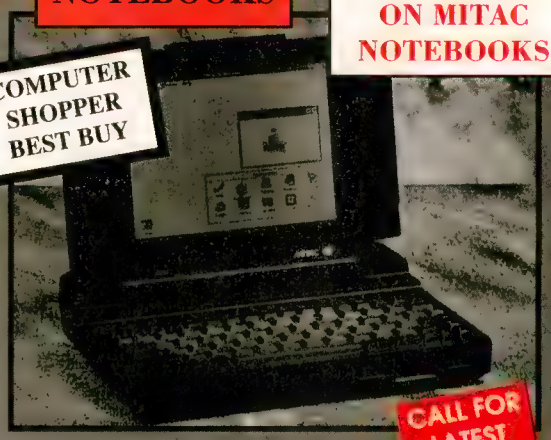

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TAS BOOKS Account Processor™

"Without doubt, this is ***one of the best accounting packages*** currently available and ***I recommend it wholeheartedly***", writes Ged Start in PC Today Magazine.

Invest just £99 and one day of your time to find out that computerised accounting is not difficult and can be learned quicker than you ever thought possible. TAS Books is a new software package that makes ***book-keeping easier than ever before.*** Why..? It operates similar to a word processor and allows all ledger entries to be retrieved, edited and corrections to be made so they 100% accurately reflect your source documents (invoices, cheques, journals etc.).

Now you can keep accurate accounts ***without having to worry about doing things wrong.*** No more journals to correct mispostings as would happen with other accounting products. TAS Books is a product ***recommended by the Institute of Chartered Accountants in England and Wales.*** It offers many safeguards and controls. Everything is password protected, including the ability to make changes, and its security and "auditability" will delight your accountant and the VAT man.

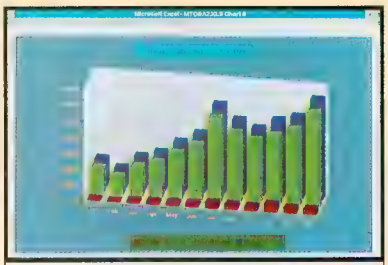
TAS Books has ***an abundance of novel features*** that let you measure performance against budgets, covering multiple periods and years. Know the exact financial position and net worth of your company. Get trading results by the day. Make vital decisions based on real facts.

It's so easy to use that ***you could even start a book-keeping service*** for others who have no time to do it themselves. The multi-books version is perfect for this!

TAS - The Accounting Solution

Programs can be run from anywhere as well as pull-down menus

Press F1 for help or multi-key, context sensitive list boxes



Easy export of nominal ledger data for use in spreadsheets

Can I do everything myself ?

Certainly, even if you're no accountancy expert. This is a big problem with other accounting packages, because none have a tutorial like ours and none of them like you making mistakes. TAS Books works in real-time. You can immediately SEE the effects of your actions on the Balance Sheet or Profit & Loss and it allows you to correct your entries if it isn't just right!

So how do I start ?

The installation copies a complete set of tutorial data to your hard disk. This tutorial will show you how to deal with virtually every financial "event" in business. When completed, you will have computerised the financial side of a business and learned how to deal with everything from overpayments, underpayments and bounced or stopped cheques to allocating and unallocating cash, write-offs, journals - the works!

Is it suitable for me ?

TAS Books is in use with thousands of individuals, small businesses and large businesses (more than 3000 were shipped after just 6 months). It is equally suitable for a large company as for your home accounts. It's all book-keeping. Our users include electrical distributors, service, catering and building companies, photographers, software distributors, and more.

What help do I get ?

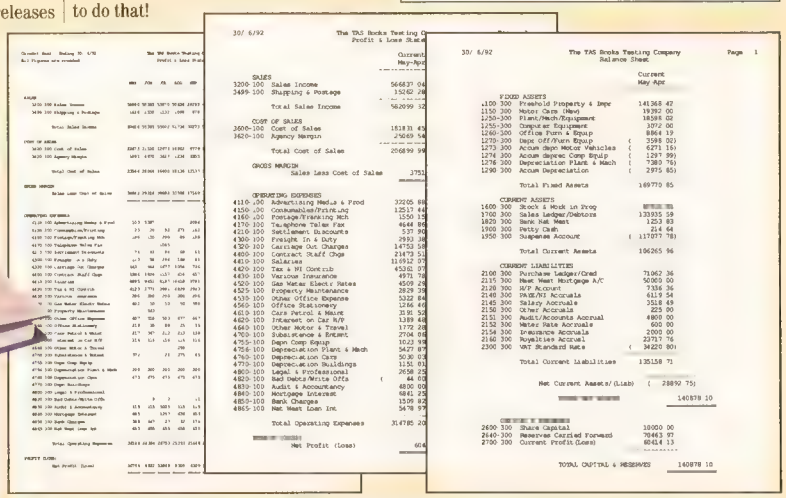
Besides the superb tutorial and on-line help, you get a 400+ page reference manual. Each has a detailed cross-referenced index. And if you find you still require help you can ring our help service. This is free during the first three months and thereafter can be subscribed to at very reasonable cost which also includes new releases of the accounting software.

And Sage and Pegasus ?

Just how does TAS Books compare..? Thats's no big question. (Ask about our free Sage Conversion Software). We believe that TAS Books is very much easier to learn and use and, since you can have 3 years data on-line, it is more flexible than both of the others put together.

In fact, in a recent comparative review, ***David Carter in What Micro?*** magazine described TAS Books (at £99) ***"the most impressive of them all, representing a fundamental redesign in accounting software".*** Because it's so easy to learn and understand, many of our users (particularly book-keeping bureaus) have switched to TAS Books. But then you'd expect us to say that - so we'll let you try ours for up to 30 days! Ask any of the others to do that!

"The packaging for TAS Books is probably unequalled... Few products come with such complete documentation; virtually all aspects of computerising your accounts are covered". writes ***Tim Woodward in PC USER Magazine.***



Superb script-based high-speed report generator ***reports over multiple periods in 1 to 13 columns.*** *Create management accounts, including Balance Sheet, Profit & Loss Statement and Supporting Schedules. In seconds!*

MEGATECH SOFTWARE 111-113 Wandsworth High Street, London SW18 4HY, Tel: 081-874 6511(24hrs), Fax: 081-877 1384

And here's more of what the press and some of the users say...

- "One of the most innovative book-keeping products to be launched is TAS Books, which is designed specifically for users who are new to computerised book-keeping." ***Dennis Keeling, in PC Direct.***
- I fully expect to see many of the features that this package includes imitated in future versions of other accounting systems." ***Ged Start,in PC Today.***
- "TAS Books is a remarkably powerful package which belies its low (£399!) price... We predict that the accounts processor concept will become accepted wisdom for all accounts packages in the next decade." ***David Carter,in What Micro?.***
- "If you think this review is filled with too many superlatives, well I'm sorry but that is just the way TAS Books is... The big boys in the PC accounting world had better take notice." ***Jim Hoggarth, Amstrad PC.*** (Now Practical PC).
- "This package deserves consideration as a very viable alternative to the Sage product." ***Tim Woodward, in PC Plus.***
- "A worthy competitor to most of the mid-range offerings from companies like Sage and Pegasus, not least because of the few demands it places on even the humblest XT." ***Geoff Wheelwright, in PC Direct.***

- ***"Top quality service is so rare these days*** that I felt compelled to express my satisfaction with the courtesy and promptness which I received from your company. Thank you very much." E.A.S. - Horley, Surrey.
- "I must say that ***I am delighted*** with the way the program has been put together, and I found it ***very easy to understand and to use.***" F.P. FCMS FCIS - Milford-on-Sea, Hants.
- "I must compliment you on an ***excellent software package*** and related tutorial. It was a pleasure to work through and ***no problems were encountered.***" D.J.S. - Arlesey, Beds.
- "I am really ***pleased with the versatility and power*** of this book-keeping program." N.A. - Preston, Lancs.
- "This is ***the first system whose manual I have understood***, all the others I have used have been written by illiterates... I will have ***no hesitation in recommending your system.***" F.H.H. ACA - Sutton Coldfield, W Midlands.
- "I have worked through the tutorial and really ***cannot praise it enough***. My book-keeping training and experience was many years ago, but this was almost painless by comparison. If the program is as good in practice as in the tutorial (and why not) ***I shall be utterly delighted.***" J.W. - Frinton-on-Sea, Essex.

Special Offer from £399 for just £99 and "No Risk" 30-Day Money Back Guarantee !

Nominal Ledger

- Complete system supports both 12 (monthly) or 13 (variable) accounting periods.
- 6 Digit account number and 3 alpha department code for a virtual unlimited number of cost or profit centres
- Any number of income and expense accounts
- Journals may have up to 250 lines with full WP-like editing facilities.
- Both recurring and reversing journals are fully supported.
- Unlimited detail and up to three year's summary totals are kept for all accounts.
- Current and next year's budget can be defined down to single months/periods.
- Instant Trial Balance for any period from one month to a whole year up to 2 years ago!
- Script-based report generator for financial statements and supporting schedules. Balance Sheet and Profit & Loss Statement scripts already included.
- Financial statements print in 1-4 column and 12-13 column formats each with percentage ratio calculations.
- On-screen nominal account enquiries are supported. Report from a single-day up to a whole year.
- All reports can be sent to screen, printer or disk for editing with any WP package.

Sales Ledger

- Customer can also be a supplier. No less than 5 screens show the record details incl. credit card details.
- Full open item accounting with unlimited transaction detail
- Meaningful alpha customer code (short-name) for easy retrieval
- Recurring (monthly) journals are fully supported. Recurring journals may be added and posted at any time.
- Payments can be allocated from easy on-screen list. Simply highlight the invoice to be allocated with up and down-arrow etc.
- Payments can be retrieved and the invoices un-allocated.
- On-screen customer account enquiries report down to individual invoice lines. From a single-day up to a whole year or open items only.
- Aged debt report checks a customer's oldest unpaid invoice and puts the customer automatically on credit hold.
- Comprehensive reporting includes daybooks, unallocated cash report, statements and numerous customer related reports
- Mailing labels, mail-merge file .
- 4 Automatic levels of overdue account letters can be produced.

Purchase Ledger

- As S/L, it has full open item accounting with unlimited transaction detail.
- Allocate each P/L entry to up to 250(!) different expense accounts and departments.
- Access permitting, all P/L entries may be retrieved, corrected and re-saved.
- Recurring (monthly) transactions are fully supported and may be added and posted at any time.
- Superb automated invoice payment selection for one or more suppliers with full remittance advice/cheque creation and control.
- Payments and discounts can be allocated from easy on-screen list. Simply highlight the invoice to be allocated with up and down-arrow etc.
- Payment and settlement discount history is kept so payments can be retrieved and the invoices un-allocated.
- On screen supplier account enquiries report on any period from a single-day up to a whole year or open items only.
- Comprehensive reporting includes purchase and cash daybooks, aged invoice report, unallocated cash report and numerous supplier related reports.
- Easy mailing labels and mail-merge file.

Cashbook

- Supports up to 9 bank accounts, each with reconciliation and inter bank transfer
- Cashbooks are automatically updated by sales and purchase ledger entries.
- Supports cash receipts/sales and payments/purchases, (monthly) recurring receipts and payments incl direct debits and standing orders.
- Allocate each cashbook entry to up to 250(!) different income or expense accounts and departments.
- Lengthy journals scroll in box and all Ins/Del Line, Home/End etc. function keys work!
- Supports multiple VAT rates for both Standard as well as Cash Accounting scheme.
- Fully supports non-VAT related payments such as salaries, Customs & Excise, insurance, loans etc
- Access permitting, all cash book entries may be retrieved and descriptions, amounts and expense accounts etc may be corrected and re-saved.
- Instant display cash/bank balance (what you have) and statement balance (what the bank thinks you have).
- Superb statement reconciliation, on-screen enquiries.
- Daybooks from 1 day up to 3 years ago. Can be sent to screen, disk or printer.

Sales Invoicing

- Supports both product code based stock items as well as free format text paragraphs
- Orders and invoices etc. can contain both stock and free format text.
- One-level parts explosion where a product may consist of up to 50 other parts.
- Without re-entering, an order can be printed and changed from Quotation to Pro-Forma to Packing Slip to Invoice and back to Credit Note.
- Design your own (multiple) formats for Quotations, Pro-Formas, Packing Slips and Invoices / Credit Notes etc.
- System will "remember" settlement discounts as well as line discounts.
- Special "dynamic discount" for each customer/product combination
- Invoices can be reprinted and invoice line item history can be kept for S/L account enquiries for unlimited periods.
- 4 Superb Sales Analysis Reports by Product, by Category, by Customer and by (multiple) Periods
- System checks both credit limit and credit hold flag which is set automatically by the aged invoice report.
- Complete system is limited by disk space only.
- Fully upgradeable to TAS Books 2 available later.

10 Reasons why you'll want to say "Yes" to TAS BOOKS !!!

1. TAS Books is recommended by the Institute of Chartered Accountants in England and Wales.
2. No formal financial training required. Unrivalled tutorial and reference materials make it easy to learn and use.
3. Unique "Account Processor™" concept allows corrections to be made.
4. Limited period offer for just £99! An opportunity you should not miss.
5. Unconditional 30-Day Money Back Guarantee. There's no risk whatsoever!
6. Know the exact position of your company. Get trading results by the day!
7. Know exactly who the bad payers are and get help getting the money in.
8. Make vital decisions by knowing where you are, based on real facts.
9. Measure performance against budgets and past years' information.
10. Know the net worth of your business. No more waiting for the audit.

Special Offer From £399 For Just £99!

We have saved the best news till last. TAS Books costs £399 single-user or £599 multi-user. But ***for a limited period*** we are selling TAS Books at a "Special Offer" price of just £99! single-user or £199 multi-user. That's a saving of £300 or £400 on the normal selling price. ***This is not a cut-down version.*** You get the complete package as shown in the picture. It's fully operational and includes 3 months technical telephone support!

Satisfaction Guaranteed Or Your Money Back!

The only customer is a satisfied customer, so we back the package with our unique ***30-day money back guarantee***. If you like it you keep it. If not, you simply send all of it back and we'll refund your purchase price (less £10.58 shipping). Immediately!

This £99 offer won't last long. ***There is no risk,*** so ask your dealer or, phone or fax us your order today! We accept credit cards!

Will it run on my computer ?

TAS Books will run on any PC or compatible computer with 640KB RAM and a hard disk. It includes both 5.25" and 3.5" floppy disks.

What about the VAT Inspector..?

Both the Standard VAT and the VAT Cash Accounting schemes are fully supported. If you are not VAT registered, you can simply ignore it.

TAS Books has been inspected by the VAT office. The dual VAT Registers as well as the audit trail remain on disk. This allows you to re-run the audit trail and all of the VAT reports as and when required.

About MEGATECH Software...

MEGATECH Software is an operating division of ComoPharm Limited. Incorporated 18 years ago, it has been in the computer business for more than 16 years. TAS BOOKS is of MEGATECH's own design and broke new ground in computerised accounting. It was formally launched during the autumn of 1991. Since then thousands have been shipped and it currently has more than 10% market share (increasing) of the business accounting software market. (Source ROMTEC).

THE INSTITUTE OF CHARTERED ACCOUNTANTS IN ENGLAND & WALES

TAS Books is a product recommended by the Institute of Chartered Accountants in England and Wales. However, any agreement made in respect of the product or for the purchase of related services shall be made between the member and the supplier, and the Institute shall not be a party thereto and cannot therefore be responsible for loss or damage occasioned by the use of the product or relate services. For this reason, members should satisfy themselves that the products or services fulfill their own standards or requirements and should not rely merely on the recommendation of the Institute.

V2

TAS BOOKS,	Single-User/Single Company:	(SU)	£399	**Special Offer Price £ 99** (£126.91)
TAS BOOKS,	Multi-User LAN Version:	(MU)	£599	**Special Offer Price £199** (£244.41)
TAS BOOKS,	Multi-Books Version add:	(MB)	£200	**Special Offer Price £ 50** (£ 58.75)

The Multi-Books version allows the programs to be shared by different companies and is perfect for a book-keeping service.
Upgrade at any time for the price difference. Prices in brackets include VAT, overnight shipping and 3 months telephone support.
TAS Books 2 will have full Purchase Order Processing and Stock Control and is scheduled for release later in the year.

Order by Phone: Call us on 081 - 874 6511 quoting this magazine and your credit card details.
Order by Fax: Fill in this coupon (with your credit card info.) and fax it to us on 081 - 877 1384
Order by Post: Send an order (or use this coupon) with your cheque (or credit card details.) to: MEGATECH Software, 111-113 Wandsworth High Street, London SW18 4HY.

1 - All orders received by 2.30pm will be sent next-day delivery on the same day we receive your order.
2 - Please help us to make our advertising more efficient and quote the name of this magazine if applicable.

I understand that I can return the complete product, within 30 days, in good condition and in its original packaging for a full refund of my purchase price, less £10.58 shipping and handling. On that basis please supply a copy of TAS Books, (SU/MU/MB)Version: _____ @ £_____ (incl. shipping and VAT).

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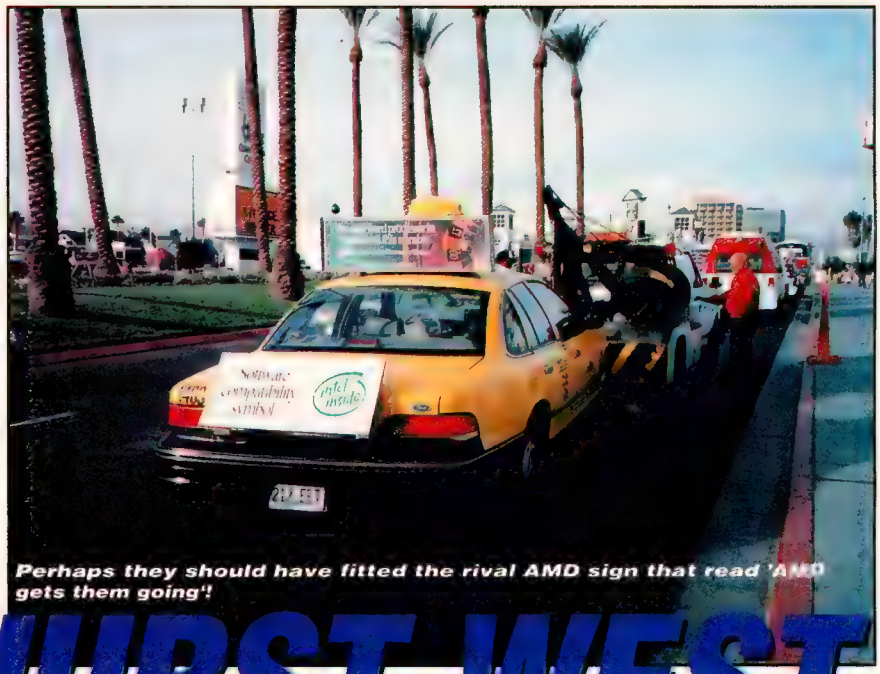
Lyndhurst West

THE LYNDHURST WEST COLUMN

There is no doubt that the US marketplace drives the world of Personal Computers.Every Autumn 2.2 million square feet of computer hardware and software attracts some 140,000 visitors to the world's largest computing event - COMDEX 'Fall in Las Vegas.Lyndhurst West looks back at COMDEX, and decides what's hot, and what's not in Coming our way.



Perhaps they should have fitted the rival AMD sign that read 'AMD gets them going'!

PC products are US! - A Look at what's coming our way from the US of A.

Coming our way

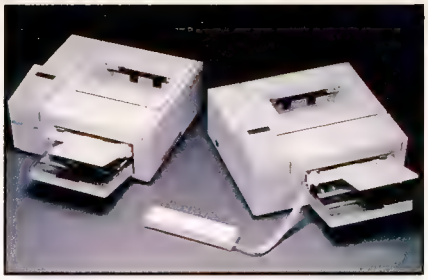
Covering COMDEX 'Fall, as the Interface Group calls the Western World's largest computing showcase, is a bit like being an electronic lemming. Two thousand exhibitors take up over 2.2 million square feet of space, in two gigantic exhibition halls and a further six casino sites in Las Vegas, in the heart of the Nevada Desert. This isn't such a monumental task but for the arrival of another 150,000 visitors who have exactly the same plans!

The American computing marketplace does have some similarities, and some major differences with the UK and Europe. Some hardware and software will easily transfer to Europe, whilst other products wouldn't have a snowball's chance etc. The knack is actually predicting which products will make the transatlantic transition. Time is also a consideration. Any product announced at COMDEX 'Fall (in November) usually arrives in the UK the following March or April. The extra three-month interval often helps as the initial model or release is nearly always modified or upgraded by the following Spring. In addition, an agent or distributor has often been found for the new product, improving after-sales support in the UK.

Here's the Lyndhurst West "Easy-8", a short list of products that will easily make the transatlantic crossing to our market - look out for them this Spring.

D is also for DOC IT the desktop document processor from OKI

Print, fax, scan and photocopy from a single desktop peripheral? - yes with OKI's DOC IT an all-in-one hardware bundle of laser printer, scanner, photocopier and fax. DOC IT connects to a PC with its own interface card and umbilical cord. The software that drives DOC IT runs under Microsoft Windows, allowing users to transfer the



document copying/imaging/printing/faxing format to existing Windows applications and the thousands of DOS software products.

The DOC IT is based on OKI's own LED (Light Emitting Diode) print engine for laser quality printing and on-demand copying, along with an image scanner for scanning, copying and faxing documents. The scanner can also be removed from its internal cradle to facilitate coverage of large drawings or books that cannot be loaded via the 25-page feed hopper. The DOC IT is controlled via a 16-bit plug in ISA (Industry Standard Architecture) AT-class board, powered by an Intel 32-bit i960 RISC (Reduced Instruction Set Computer) microprocessor. OKI plan to launch the DOC IT in the UK next month with a competitive £3000 price tag.

D is for Dashboard for Windows from Hewlett-Packard

Tagged as "Convenient Push-Button control over everything you do in Windows" Dashboard is an elegant solution to those cluttered screens after you've installed umpteen applications to your Windows environment. In essence, Dashboard is a utility panel that is neatly organised, much like the dashboard in your car, giving instant access to the features and applications you want - now! The best feature of Dashboard is the customisation, where every user can modify the "look and feel" of their day-to-day Windows desktop exactly as they want it.

I is for "Icon Hear-It" from Moon Valley Software

Moon Valley Software are already well-known for their Icon-Do-It application that lets Windows' users select their own choice of Icon for any particular application. COMDEX saw the launch of Icon Hear-It, which includes all the graphical abilities of Icon-Do-It plus the added dimension of sound. A wide range of sounds - squeaks, sirens, creaking doors and famous one-liners from the movies - can all be associated with any particular Windows event. Closing a file will give off a threatening "I'll be back" sound bite, whilst erasing a file will play the sound of a rubber rubbing against a sheet of paper. Icon Hear-It is the perfect solution for PC users who want their business-like IBM compatible to be more like an Apple Macintosh.

M is for Messages from Software Grove Corporation

Its amazing the number of computer users who

Lyndhurst West

pick up a pen or pencil to take a telephone message when they're sitting in front of a working PC! Messages from Software Grove solves the problem in both the DOS and Windows environments. In the Windows version of Messages a totally realistic message form appears on-screen at the touch of a hot-key, or have it hovering in the wings by simply adding the Messages Icon to the Windows Start-Up Group. The Date & Time fields are automatically filled from the PCs time and date. Repetitive messages like "Isn't he in yet - OK I'll leave another message" are catered for by a recall of names of previous callers, so messages can automatically fill in the FROM, OF and PHONE fields. Messages prints out to both dot matrix and laser, where its four-up format and the use of coloured paper stock can deliver the normal message slips, whilst the original data resides safely on the PC. The Messages for DOS product can stay primed to "Pop-Up" from its TSR status by using a mere 6K of RAM.

Software Grove's Messages

O is for OnTime the Calendar/Scheduler from Campbell Systems

As a regular user of OnTime for DOS I was pleased to see Campbell Systems release an update to both their Windows and DOS versions of this invaluable personal organiser/notepad/time manager. New features include many functions. Work Groups enables you to schedule meetings across the Group. RSVP automatically tracts meeting attendees via an RSVP function and indicates who's coming and who's declined, as well as listing who hasn't yet seen the notification. Flexible Time Increments allows appointments to be added in any length, 1,2,3,4,5, etc minutes. Group Memo lets Originators of Group Meetings attach a group and personal memos to meeting notifications. Reconciliation allows interfacing with laptops and other stand-alone PCs to transfer personal calendars and reconcile calendars with the master Network Calendar. Perhaps the most useful feature is OnTime's ability to Import and Export data in ASCII format, now you can share your OnTime data with your favourite Database.

Funny what you find in dustbins at Comdex

Q is for QBENCH - Disk Drive Benchmark software from Quantum

QBENCH from disk drive manufacturer Quantum gives a new perspective on disk drive performance. The old chestnut of rating a disk drive by its Data Access Time, or Average Seek Time has long since been overtaken by modern drive technology. Current test methods for accessing Average Seek Times are based on several myths: Myth-1, all disk drive requests are random access; Myth-2, only the seek portion of a random access (the time taken to move the disk drive read/write head from one area of the disk to another) is relevant; and Myth-3, new disk drive technology that doesn't improve seek time can be dismissed as ineffective. Quantum's QBENCH replicates the way that disk drives are used in the real world by combining the same portions of random and sequential read-and-write operations that are found in modern Operating System and Graphical User Interface (GUI) environments such as Windows.

T is for Trimm Industries who make a huge range of PC cases

Trimm's proud boast is that they make an enclosure for every purpose, "from walk-in to carry out." Trimm's parent facility in California has been the home of engineering, design and manufacturing since 1928 - that's 65 years ago! Today Trimm also has extensive facilities in England and Germany. The quality is impressive, every enclosure carries an approval from the relevant agency, Underwriters Laboratories (UL), Canadian Standards Association (CSA), and TUV Bauart (European). Such adherence to international standards makes it but a one-step process for the actual final assembler of the complete system to obtain either US FCC or European VDE electronic emission approvals.

W is for WinFax 3.0 from Delrina Technology Inc

As its name would suggest, WinFax is a Windows-based fax application, which has been shipping for a year now in its Version 2.0 form. The new WinFax PRO 3.0 adds significantly to the original product. The extra features are OCR (Optical Character Recognition), Fax Document Management, Advanced Phonebook, FAX Cover Page Designer, Image Processing, and Scanner Support. The OCR software, which automatically converts faxes into an editable format for word processing or spreadsheet uses, was developed by Caere using their neural network recognition technology. The stand-alone Caere OCR product costs nearly $600, with WinFax PRO 3.0 shipping at a US introductory price of $129, the product certainly exudes value!

Items mentioned in this edition of Lyndhurst West

Dashboard for Windows
Hewlett-Packard Ltd
Cain Road
Bracknell
Berkshire
RG12 1HN
Tel:0344-369222
Fax:0344-363344

DOC IT
OKI Systems (UK) Limited
550 Dundee Road
Slough Trading Estate
Slough
Berkshire
SL1 4LE
Tel:0753-531292
Fax:0753-819899

Icon Hear-It
Guildsoft Ltd
Suite 113
The Computer Complex
City Business Park
Plymouth PL3 4BB
Tel: 0752 606200
Fax: 0752 606174

OnTime
Campbell Systems Inc
21700 Northwestern
Highway
Suite 1070
Southfield
Michigan 48075
USA
Tel:0101-313-559-5955
Fax:0101-313-559-1034

Quantum QBENCH
Ingram Micro (UK) Limited
Garamonde Drive
Wymbush
Milton Keynes
Buckinghamshire
MK8 8DF
Tel:0908-260422
Fax:0908-262883

Trimm PC enclosures
Trimm Industries
2-6 Giltway
Giltbrook
Nottingham
NG16 2GN
Tel:0602-385485
Fax:0602-389973

Messages
Software Grove Corporation
12525 Willows Road,
Suite 130
Kirkland
Washington 98034
USA
Tel:0101-206-823-0833
Fax:0101-206-823-1246

WinFax 3.0
Delrina Technology (UK) Limited
Foster House
Maxwell Road
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Hertfordshire
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R. Hicks, Hull University

Reliable efficient service from courteous and knowledgeable staff
Mike Pepper, British Rail

*PC Plus *recommended* (386)*
*PC Magazine *recommended* (486SX)*

"The Mighty Atom"
Practical PC (486/50)

Good service always and very competitive prices
Mark Buggy, NHS Supplies Authority

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intel inside

SYSTEM	CONFIGURATION	PRICE
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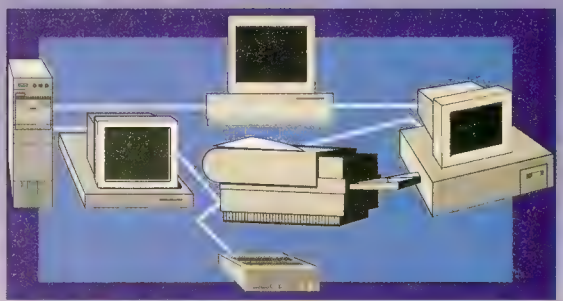
486DX/33Mhz	4MB RAM 64K CACHE 105MB HDD SVGA	£1095
486DX2/50Mhz	4MB RAM 256K CACHE 200MB HDD N/I LOW RAD SVGA IDE CACHE CONTROLLER	£1515
486DX/50Mhz	4MB RAM 256K CACHE 200MB HDD N/I LOW RAD SVGA IDE CACHE CONTROLLER	£1575
486DX2/66Mhz	4MB RAM 256K CACHE 200MB HDD N/I LOW RAD SVGA IDE CACHE CONTROLLER	£1665

inc: MS DOS 5, mouse, 3.5" FDD, 1yr on-site warranty, ABC integrated package (£249 RRP), unlimited hotline support

SPECIAL OFFER - ENTRY LEVEL
386SX/25
2MB RAM, 1.44FDD, 40MB HDD, 14" CVGA, Mouse, DOS 5, Integrated package + games
£595.00 (£710.88 inc VAT & delivery)



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The annual COMDEX/Fall is the largest computer show in the world. Chris Hankins, reporting from Las Vegas, catches a glimpse of the future and the myriad of products on show

SHOW REPORT

COMDEX FALL '92

The greatest computer show on earth, COMDEX/Fall '92, is set against the glittering background of Las Vegas, Nevada USA. Las Vegas, famed for its gambling, outlandish hotels and casinos, is dominated by this annual event, with exhibitions, conferences, seminars and product launches taking place in most of the major hotels.

Although the COMDEX (COMputer Distribution EXposition) show is multi-platform covering all popular types of computer, the PC is dominant with major companies such as Microsoft, Intel and IBM at the fore.

The idea for the COMDEX exhibition was born some sixteen years ago, featured 157 American companies and attracted less than 4,000 visitors. This, the fourteenth COMDEX, is the biggest yet - attended by over 135,000 people from over 100 countries.

To a great extent, COMDEX is a show-case for new technology giving a glimpse of the future, and yet, multinational companies with large research and development budgets mingle shoulder to shoulder with over 2,000 smaller manufacturers, suppliers and resellers from 22 countries around the world.

The exhibition is organised by the Interface Group, a multi-hundred-million-dollar organisation, which leases and manages the Sands Expo and Convention centre in Las Vegas. Its Chief Executive Officer, Sheldon G. Adelson, describes COMDEX as the one computer event the whole world turns to. It is the premier international marketplace for new product introductions, support programs and high-performance technologies.

COMDEX/Fall is part of the United States Department of Commerce Foreign Buyer Program and is promoted in embassies throughout the world.

● As you might well expect, Microsoft Windows played a key role at the COMDEX exhibition, a single section of which was dedicated to the largest ever demonstration of third-party Windows applications. More than 260 Windows applications were on show, covering dedicated 32-bit applications for the 386 and 486 range of PCs, multimedia solutions for home and business, based on the recently released Microsoft Video for Windows technology, and applications using the new Microsoft Windows for Pens operating system.

Pen Computing will soon be a familiar term in the PC market place allowing PC users to use 'natural' and intuitive pen movements for PC input using a graphics tablet or, in some cases, directly on the screen. The pen, which is cordless and has no batteries, looks and feels like an ordinary pen. It works by using an in-built coil and capacitor to return a radio wave emitted by the screen to a grid of wires below the screen. This grid enables the software to determine the position of the pen.

In applications such as drawing packages where the pressure applied to the pen determines line thickness or style, the frequency of the returned signal is changed by the pen nib compressing the integral coil as pressure is increased. The change in signal frequency is identified by the software and appropriate action taken.

Windows for Pens is a special set of extensions for Windows 3.1 that supports pen innovations such as ink and gestures, as well as handwriting recognition and recognition of shapes and special symbols. More than 70 pen functions are supported allowing application developers to create exciting new pen applications. You will not be able to buy Windows for Pens off the shelf as it is only available to original equipment manufacturers and licensed vendors for distribution as part of specific pen-based hardware products.

Grid Computers are the first company to produce a specially designed pen notebook portable computer. This new notebook, the Grid Convertible, was launched at COMDEX and uses a unique hinged LCD screen which turns and locks over the keyboard to convert the notebook into a hand-held notepad. The Grid Convertible, when set up as a notepad, makes for easier and more natural input for note taking at meetings or when standing.

Some Hollywood stars joined in on the proceedings

● Many of the Windows applications on display were running under Windows NT - the new Windows operating system. Although the launch date for Windows NT is yet to be disclosed, the system is in its final stages of development and was certainly put through its paces at the exhibition.

● Of the larger software companies, the WordPerfect Corporation was most prominent. New for 1993 is a suite of WordPerfect applications for the IBM OS/2 operating system. WordPerfect have found the multi-tasking capabilities of OS/2 valuable and see it as an important platform for future development. WordPerfect's DOS based DrawPerfect presentation and graphics program has been redesigned and renamed as WordPerfect Presentations 2.0 for DOS and will be available

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COMDEX/Fall '92

"Illogical Captain, a Star Trek screen saver?"

soon. To win over users of other presentation packages such as Harvard Graphics, Freelance Graphics and Microsoft PowerPoint, WordPerfect are offering competitive trade-up discounts.

The electronic mail, scheduling and calendaring application, WordPerfect Office 4.0, has also been released, initially in DOS, Windows and Macintosh formats with OS/2 and UNIX versions to follow. Finally, WordPerfect have announced WordPerfect 5.2 for Windows which includes an integrated module to take advantage of the Digital Equipment Corporation's TeamLinks for Windows - a network, electronic mail and file sharing utility.

● John Wiley and Sons, prolific publishers of computer books, have announced a new series of books that will, they claim, change the face of computer book publishing. In an attack on all computer book publishers (including themselves), they see the scramble to publish books on every piece of newly released software as resulting in shelves full of regurgitated documentation - modified either for the novice or the power user and thus leaving the average user with intermediate skills out in the cold. Wiley's new series of books, the Insider series, are written by experienced users or gurus (rather than experienced writers) in a question and answer format with real-life scenarios and practical demonstrations. Each book in the series will include 'hot tips' and shortcuts, and explain hard to find and undocumented features of each subject. It will be interesting to see whether the Insider philosophy slows the publication of books on future software releases.

● There are many Eastern, American (and even some European) countries who are not yet making their products available in the UK. They see the UK as a market growing in size and importance, but their reluctance and over-cautiousness result in UK computer users lagging behind their American counterparts. A small number of European and UK distributors and Value Added Resellers (who offer product support and technical back-up) are seeking to help the smaller American companies break into the UK market. If they are successful, we should soon see an influx of new products and more choice.

Look out for products such as Visio, a drop and drag drawing package which utilises job-specific stencils; WinDesk, a customisable desktop for Windows; ProtoView, a screen management facility for Windows; Star Trek the Screensaver, a screensaver program for Star Trek fanatics; Office Accelerator, a program to run your office from within your favourite word-processor; Color Tools, a multimedia graphics solution; Labtech Vision, a program that produces dynamic graphics that automatically update in real time, and CameraMan, which records and plays back Windows routines.

● If you need even more software choice, why not run Apple Macintosh software on your PC? This is now possible with an add-on card from Hydra Systems Inc. who produce the ANDOR EX - a 33MHz Macintosh compatible upgrade board which allows you to run any Macintosh software and any PC software on the same machine.

A single keystroke changes between the Mac and PC environments which can run simultaneously. The card also has Macintosh connection sockets to give complete connectivity compatibility with external Macintosh peripherals.

Shorts & T-shirts are the order of the day in Las Vegas, not an umbrella in sight

● The personal desktop computer is growing too powerful for stand-alone desktop use. World-wide and local networking, and modem communications are increasing the scope and usefulness of the PC. COMDEX/Fall dedicated a complete section of the exhibition to computer connectivity. The growth of wide area networking and the recent introduction of wireless networks will mean more mobility, easier access to information, electronic mail and video conferencing - anywhere in the world.

The future

COMDEX/Fall, if nothing else, gives some indication of the way in which future developments are moving. Intel, developers of the processor at the heart of every PC, announced a new generation of processors. Not, as expected, a 586 processor, but the Pentium which, although still in its final development stage, was demonstrated working in several major manufacturer's prototype machines including IBM. Little is known about this new processor's specifications, but the drive for its development was led by the increased performance demands of real-time full-screen motion video and virtual reality graphics. Intel are developing more than processors, they are working towards the diskless computer and demonstrated a prototype that included a small capacity solid-state C: drive containing boot information and operating system in Read Only Memory chips and new high capacity (40Mb) removable flash ROM cards for storage of applications and data. Solid-state technology reduces 'disk' access time to nanoseconds and is more reliable than the conventional hard disk drive. The Intel prototype diskless computer was based on a modified 486 motherboard. In the future we can expect to see this technology integrated into the motherboard circuitry - initially for use in portable computers to reduce the unit weight and power requirements.

The NeXT Computer company, headed by Steve Jobs (co-designer of the Apple Macintosh), are releasing NeXTSTEP 486, an object-oriented system that gives complete software data compatibility, unlimited multitasking both locally and across a network, and allows you to create custom applications on your desktop.

In the not too distant future we should see a diskless, Pentium, networked, pen based computer running NeXTSTEP or Windows NT. Watch this space.

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Cacheing

Getting the maximum data transfer rate out of a hard disk can increase the perceived speed of your computer enormously. With modern programs, especially Windows applications, taking up massive amounts of hard drive space and producing ever larger files, the old 20 megabyte standard MFM type hard drive's speed is no longer sufficient. How best to reconcile the need for faster performance and increased capacity? Read on!

Caches

There are two levels of cacheing available in software for the PC user. The first is called buffering, and really only makes a difference on slower systems.

Each buffer you assign in your CONFIG.SYS is allocated 512 bytes of memory (the size of a sector on disk). Contiguous data from the disk is moved into the buffers and from there read into application RAM. Since there is no speed difference between application RAM and the are the buffers are allocated, speed improvement is negligible in all but the slowest systems.

The second level is a RAM Cache which works very differently.

At the very simplest level, a disk cache keeps the most frequently used parts of a disk's information in RAM. Any request for that data is fed to the faster silicon, rather than the slow hard drive, which increases perceived performance dramatically.

In more detail, cacheing utilities are capable of amassing copies of data from frequently accessed areas of the hard disk, which are used instead of the disk versions - and they don't have to be contiguous (though if they are, things get faster still). As more and more data is read, old data that has been acessed least is discarded to make room for the new. When data is written to the hard disk, the cache moves it straight to the hard drive, normally, rather than holding onto the data and doing it later. There are obvious dangers in having changed data in memory rather than on disk, mostly associated with the big red switch.

Everybody who buys MSDOS 5.0 gets a disk cache thrown in for free - same applies to DR DOS in its various versions. The MSDOS variant (which is, numerically, at least, the most popular) is called SMARTDRV, and is almost a necessity if you're looking for faster hard disk performance. To put it in simple terms, hard disk performance has failed to keep up with the massive increases in processor speeds - you need a disk cache of some description, so we might as well start with the one you get for free.

The first level of primitive cacheing we all have is provided by the BUFFERS command in CONFIG.SYS - and really, it isn't cacheing at all - check out the Caches info-box. From DOS 2.0 onwards, the number of buffers available to DOS has been user-configurable, and fiddling with the value can make a speed difference. However, buffering relies on the data lying contiguously on the hard disk, so unless you de-fragment your hard drives regularly, the effectiveness of buffers gradually diminishes. Frankly, speed differences are imperceptible on all but the slowest systems, so only the very dedicated need to bother too much with buffering. You'd be well advised to leave your buffers value at 20 or 30, if you're not cacheing, and forget about them.

The default value for buffers is 0, so if you don't specify any, you won't get any. You could experiment by commenting out the buffers=xx line in CONFIG.SYS to see whether buffering has much effect on your system, or, if you have DOS 5.0, play with the secondary cache it provides. CAUTION: Do not use secondary cacheing in the buffers= line if you're using any other cacheing program. To specify a secondary buffer cache, append a second parameter to the command line - a value of 8 is optimum for most systems. The line will look like this:

```
buffers=30,8
```

SMARTDRiVe is the free disk cacheing program provided with DOS 5 (the version you should be using now). It's actually very effective, although perhaps a little slower in use than some of the more upmarket proprietary programs. However, since its cost is minimal and most people will have it (a version came with Windows 3.0 and 3.1) it's likely to be the most used of the cacheing utilities.

Configuring it for use is simplicity itself, although there are one or two caveats to observe. The first of these is that a basic system with only 640k of RAM will be unable to use smartdrv, since it requires either expanded (at least 256k) or extended (at least 512k) memory. Secondly, it does, in common with most other similar utilities, use up some conventional memory (the precious 640k DOS RAM).

With that in mind, the basic command line for smartdrv resides in your CONFIG.SYS, and looks like this:

```
device=c:\dos\smartdrv.sys
```

Later versions, particularly the version shipped with Windows 3.1 use two files, smartdrv.sys and smartdrv.exe. The .sys file resides in CONFIG.SYS and the .exe file in AUTOEXEC.BAT. The reason for this is largely to do with SCSI hard drives and the need for double buffering - see info box. Either way, tuning smartdrv depends not so much on where it is started from, but the parameters that are used to specify the amount and type of memory that it will use.

Expanded vs. Extended

We will examine the various different types of memory in next month's installment, but for the moment, use the following rules of thumb:

8086/8088 based machines

There's no choice here - you must use expanded memory. Specify as much as you can resonably afford to use for a cache, bearing in mind any programs you may use that require expanded RAM. Use as much expanded memory as you can afford for the cache, up to 2048k, and make sure it is above 256k

Command line:

```
device=smartdrv.sys /a xxx
(where xxx = the size of the cache)
```

The command must come after and device drivers you need for your expanded memory card.

80286 based machines

Use extended memory, and load smartdrv as the first device driver in CONFIG.SYS after the HIMEM.SYS command line.(or smartdrv.exe as the first command in AUTOEXEC.BAT if you're using Windows 3.1). Use as much extended RAM as you can afford, up to 2048k, but in any case do not try to use less than 256k.

80386/486 based machines

Where the PC has no real expanded RAM, using EMM386.EXE to provide it for cacheing is wasteful of resources. Use Extended memory and load smartdrv into Upper Memory Blocks if you've got EMM386 active as a UMB provider.

In part two of our go-faster series, we consider getting even more out of the hard disk - by cacheing

PC TUNE-UP

The section of CONFIG.SYS that deals with this looks like this:

```
device=c:\dos\himem.sys
device=c:\dos\emm386.exe noems
dos=high,umb
devicehigh=c:\dos\smartdrv.sys xxxx
yyyy
```

(where xxxx is the cache size, and yyyy is the minimum size it can be when Windows 3.0 or higher is running)

Again, do not exceed 2048k, as performance gains, even with exceptionally large hard drives are minimal - less than one per cent - above this figure. The Windows 3.1 version of Smartdrv is self-configuring. It reads the amount of RAM in the system and will allocate up to 2048k depending on the processor type and amount of RAM available. Using EMM386 to provide expanded RAM for cacheing purposes is a waste of time and memory - so don't do it. EMM386 emulates expanded memory, and smartdrv will run much faster in physical extended memory than it will in emulated expanded memory.

What you lose in memory by installing smartdrv you can, in some measure, reclaim from the Buffers command. Using a disk cache lessens the requirement for buffers, and so you can safely reduce the number to 10 or less, or sometimes even do away with them altogether. Only experimentation will provide the answer for you, as each machine and its associated applications is different, and juggling with the number of buffers will have varying effects.

DOS also provides a few other go-faster bits and bobs, some of which are useful, some less so. The first of these is FASTOPEN, a utility of a lesser usefulness, although it can, in certain situations, make disk acesses a litle faster. It maintains a list of files and their locations in memory, so that DOS can refer to that to find a file, rather than the file allocation table on your hard drive. Frankly, it isn't worth the memory space it takes up, as improvements with other than database programs are imperceptible, and access with database files aren't speeded up very noticably.

For machines with pots of memory and using Windows, though, RAMdrive is a different kettle of fish. Windows and its applications are notorious for the creation of temporary files - if you've ever crashed out of Windows you may have seen files with the extension .tmp littering your hard disk. Obviously, applicatons are writing these files to your hard drive, and referring to them. Even adding tons of extended RAM to your machine doesn't stop them from being created, so one of the better uses of a bit of extra RAM is to create another 'hard disk' in memory, using the ramdrive program. For a 386 or 486 with 8 megabytes of RAM, I'd suggest the following:

1. Load all drivers high, using EMM386 to provide Upper Memory Blocks (we'll cover this in more detail later in the series).
2. Specify a smartdrv cache of 2MB, loading smartrdv high as above
3. Specify a 2MB RAM drive using RAMdrive - load it high with devicehigh
4. In AUTOEXEC.BAT insert two lines:

```
set tmp=d:\
set temp=d:\
```

(where d:\ is the drive letter for your RAM drive - remove any other similar lines)

The effect of these steps is to give you, effectively, a much faster 4MB machine in which Windows will perform much better - and the difference can be startling, depending on which applications you use most. Microsoft Word for Windows, for instance runs faster, and printing using Print Manager is speeded up tremendously - you get control of your machine back very quickly indeed, with no annoying hard disk whirring.

Like everything mentioned in this article, it's worthwhile experimenting with RAMdrive - it can use both expanded and extended memory, with the same provisos as smartdrv as regards EMM386. I wouldn't use RAMdrive on a machine with less than 8MB of RAM, though, since 4MB is about the absolute minimum you need to run Windows sucessfully, and the smartdrv and RAMdrive allocations have to be taken away from the overall amount.

Hardware solutions

The final cacheing solution is hardware based, and relies on cacheing controllers. These are available, at some cost, as an add-on, and one or two PC makers now include tham as options on their specification lists. In general, they speed up hard disk data transfer times by at least as much as software caches, but cost is likely to be a factor that you will have to weigh up. In general terms, if you machine currently has either an MFM or RLL drive, investing in a cacheing controller card for it will be an unwise investment. Far better to go for a new IDE drive, or, probably cheaper, invest in some extra RAM and slap a big software cache onto the machine. For IDE drives, a cacheing controller can increase throughput by up to 50 per cent, the average figure being around 30 per cent, but efficiency is largely governed by the amount of RAM on the controller card, and its speed.

If cost is a deciding factor, then it is almost as effective, and much cheaper, to add some RAM to the machine and use a large software cache than to change controllers. If ultimate speed is the aim, then consider a cacheing controller, and stick 8MB of RAM onto it. It will not be cheap, but it will be blisteringly fast!

MSDOS 6 is coming

A lot of what we've discussed in this series implies that you need to buy other programs to get the best out of your system - de-fragmenters, disk compression programs and so forth, but that isn't to be the case, necessarilly, quite soon.

Although Microsoft has not yet gone very public on it, MSDOS 6 is due by the end of March 1993, and will include the following utilities:

***Disk defragmentation** - this will look uncannily like the Norton Utilities Speed Disk program, and since it is being licensed from Symantec (the publishers of Norton Utilities) there's every reason why it should.*

***Disk Compression/doubling** - there have been rumours flying around about this facility for quite some time. Thus far, the pundits have been betting on Stacker being included in the MSDOS 6 package, since a bundle with DOS 5.0 happened. Practical PC can exclusively reveal that this will not be the case - the disk compression facility in DOS 6 will not be device driven, but will form part of IO.SYS, one of the hidden system files that form the core of DOS and will be totally transparent in use.*

***Multiple Configurations** - you may remember we reviewed EasyBoot in the December issue of PPC, and considered it to be a great boon. MSDOS 6 will have a facility called MULTI-BOOT which, according to our sources, will be very similar in its effect. There will, as part of this facility, be three levels of re-boot included - a hard reset, cold re-boot, and a re-load, which sounds very familiar!*

***Anti-Virus** - again licensed from Symantec, an anti-virus capability not dissimilar from Norton's Anti-virus will be included in the package.*

***Backup** - the old backup/restore routine will be gone forever (we hope) given that a version of the Norton Backup will take its place in DOS 6*

***Memory Management** - it's a fairly open secret that the EMM386.EXE program in DOS 5 was a re-vamped versio of QEMM from Quarterdeck Office Systems. DOS 6 will see it being brought a lot more up to date.*

More than that we cannot tell you at the moment, but we will, of course, give you a full (p)review as soon as it is possible. From what we know, it seems that the prudent PC user will do well to wait a while and see what other goodies DOS 6 will provide and then upgrade as quickly as possible.

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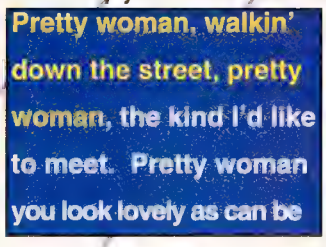

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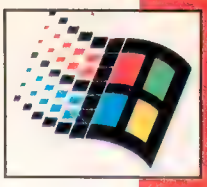

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Windows tiles

Being able to tile or overlap windows within applications is a nice convenience but have you ever wished that you could do the same thing with separate applications on the desktop? Well you can because it is an option within the Task Manager. To call up the Task Manager all you have to do is double click on the desktop or press Ctrl-Esc. Once the Task Manager is visible you can select Tile or Cascade to instantly tidy up all of the application windows currently open. My only complaint is that there seems to be no way of selecting between a horizontal or vertical tiling split.

A free diagnostic

If you have upgraded to Windows 3.1 then you might not know it but Microsoft were kind enough to supply you with a free diagnostic utility - Microsoft System Diagnostic (MSD). This is stored in the directory/Windows and all you have to do to run it is to change to this directory and type MSD. In a few moments you should see a summary screen giving details of your machine. To see more just press the key corresponding to the highlighted letter. You might even like to print out the summaries so that you can see if anything has changed. MSD is especially helpful in solving memory allocation clashes.

Today's the day

The simplest but most useful WordStar tip that I know is to press ESC @ to insert today's date into a document. By the way, if your system date and time is wrong you can correct them using the MS-DOS commands DATE and TIME. After you have typed the command, MS-DOS will tell you what it thinks the date or time is and then you have to correct it if it is wrong. Using Date or Time unfortunately doesn't alter the system clock for good. The next time you start your machine it will still show the lag or lead that it did before you tried to correct it. The real solution to the problem is usually to be found in the system BIOS. Now this might sound complicated but it isn't - as long as you can find a way into your systems BIOS SETUP. Most modern systems usually put a message on the screen when they are first switched on that tell you to press ESC, DEL or some other key combination to enter the BIOS setup. Older systems may require you to hunt around for a disk they contains a BIOS set-up program. Once in to the BIOS set-up you will find it very easy to follow the instructions to change the system clock and so put the time right once and for all - but be careful not to change anything else!

Patience is a virtue

Does your Windows 3.1 sometimes freeze on you without an error message of any kind? Does the mouse pointer still work even if the keyboard doesn't? If this is the case don't immediately reach for the reset or on/off button because there might be nothing at all wrong. If you wait for a few minutes, and it really can be that long, you might be surprised to discover that Windows un-freezes of its own accord. It seems that every now and again the memory gets so disorganised that Windows goes off to do something about it and hence the frightening silence. If you wait long enough then when it finishes this large task everything will work as normal. One final word of advice.- try not to click with mouse and type on the keyboard while Windows is frozen because when it comes back it acts on all of the commands that you have given it, apparently switching from a state of deep sleep to rapid activity that can look like another stage in a serious crash!

Quick disk drive check

If you want to make sure that all of the files in a directory can be read use the command:

```
COPY directory\*.* NUL
```

The NUL device is a 'do nothing device' that can be used to send any amount of data into the empty void. In this case it still forces the COPY device to read each file in turn.

If you want to check the data on and entire disk complete with sub-directories then try

```
XCOPY \*.*  NUL /S
```

The /S at the end of the command tells XCOPY to copy all of the sub-directories and the files and sub-directories that they contain. In other words this copies and so reads the entire disk. It may not be PC Tools but it's cheap!

Two ways to swap drives

Have you ever tried to install software that refuses to use anything but the A: drive even though you are forced to use it in the B: drive because of the size of the diskettes? Don't give up and you don't have to open the case. There are two ways to swap the identity of the disk drives. The older way is to use the command

```
ASSIGN A:=B: B:=A:
```

but in today's modern MS-DOS this is discouraged for reasons that are to do with networking and device drivers. Instead you should use the command

```
SUBST A: B:/ B: A:/
```

which does more or less the same job. It also helps to known two different ways of swapping drives because not all installation software will work with both - so be prepared to try each one.

To undo the drive swap you have to use `ASSIGN` or `SUBST A: /D` and `SUBST B: /D`.

Spreadsheet convert to values

One useful trick that often comes in handy is to convert an entire spreadsheet to values. This effectively freezes the results of all calculations and enables you to save a 'snapshot' copy of the data. In the case of SuperCalc this is very easy via the command:

```
/Copy,All,All,Values
```

In the case of 1-2-3 it is a tiny bit more difficult but only because there is no 1-2-3 equivalent of All. The command is:

```
/Range,Values,A1..x
```

where x is the bottom right hand corner of the area of the worksheet that you want to convert to values.

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Beginners' Guide - Word Processors

Word processors, because of their general similarity to the typewriter, are exceptionally easy to use - as a typewriter! Ignore, for the moment, the fact that many modern word-processors can check your spelling, punctuation and grammar, and that some can suggest alternative words or phrases when your ideas dry up. Some will allow you to add pictures and diagrams to the document, or lay out the page in columns like a newspaper. With all this technology literally at our fingertips, many people insist on using the computer keyboard as if it were mechanically connected to the printer.

If you are the sort of person who starts each word processing session with a blank sheet and relies heavily on the backspace key to erase mistakes as they occur - read on.

Windows and DOS-based word processors

There are a multitude of word processing programs available for the PC, but they can be divided into two broad groups - DOS based and Windows based. DOS-based word processors are free of the sometimes cumbersome Windows desktop, allowing efficient programs to be produced which operate on low memory, low specification (and cheaper) PCs. The disadvantage of DOS-based programs is that each has its own unique way of dealing with the word processing process and, therefore, different commands for each must be learnt. This will not be a problem if you only ever use one program, but if you are ever tempted to upgrade to a more powerful word processor, changing the 'brand' could mean starting from scratch. Windows-based word processors share many of the techniques common to the Windows interface. This makes any Windows word processor quick to learn for those familiar with Windows. The disadvantage of Windows word processors is that they, together with Windows programs in general, are very demanding of the hardware.

WINDOWS

A typical Windows based word processor

The computer keyboard

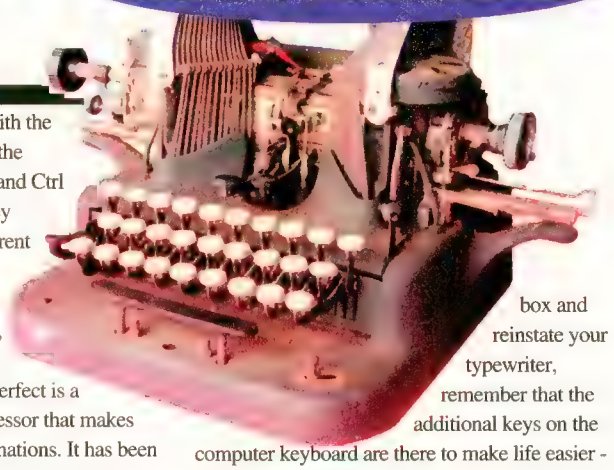
The computer keyboard differs from the typewriter keyboard in several important and fundamental ways. Firstly, it has no mechanical connection with the monitor or your printer and thus the hard copy. All the letters you type are stored in the computer's memory or on a disk if the available memory is not sufficient. The monitor allows you

Passages of text or individual letters or words are highlighted by 'dragging' the mouse cursor over the area. One action prepares the section of text for editing. The highlighted section is ready to be cut, copied or given special text attributes and styles.

BEGINNERS' GUIDE

WORD PROCESSORS

Chris Hankins shows you how to use your word processor more efficiently.



The computer keyboard differs from the typewriter keyboard in several important and fundamental ways. Firstly, it has no mechanical connection with the monitor or your printer and thus the hard copy. All the letters you type are stored in the computer's memory, or on a disk if the available memory is not sufficient. The monitor allows you to see the contents of the memory in a form that you can understand i.e. it is translated back into text as a screen image. This, of course, happens so quickly that it appears that the letters are displayed as a direct mechanical response to the keypress. Bear in mind that at this stage neither the letters displayed on the screen, nor the text stored in the computer's memory are permanent. They exist only whilst the computer is turned on and the word-processing program is active. You must save the file and give it a recognised filename for a permanent record of your work.

Secondly, the computer keyboard has many additional keys which are used to alter the function of the alpha-numeric keys. These are the keys labelled Alt and Ctrl which, like the shift key on a typewriter, bring a new set of values in to play. The actual function of the QWERTY keys when used with the Alt and Ctrl keys depends on the software being used. The Alt and Ctrl keys together with the shift key provide a possible seven different definitions of the keyboard - SHIFT, ALT, CTRL, SHIFT+ALT, SHIFT+CTRL, ALT+CTRL and SHIFT+ALT+CTRL. WordPerfect is a good example of a word processor that makes heavy use of these key combinations. It has been criticised for being difficult to learn and praised for being efficient once the user is proficient.

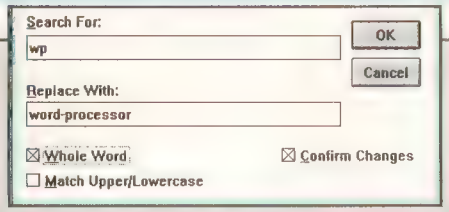
The computer keyboard also has a Delete key to delete letters in front of the cursor; a Backspace key to delete letters behind the cursor; a set of Cursor Movement keys that move the cursor up or down one line or side to side one space; a set of Function keys that perform preset functions with a single keypress, and an Escape key that is normally used to reverse or undo the last action. Movement around a page of text is made easier still by the use of the Page Up, Page Down, Home and End keys.

Before you pack your computer back in its box and reinstate your typewriter, remember that the additional keys on the computer keyboard are there to make life easier - and they do.

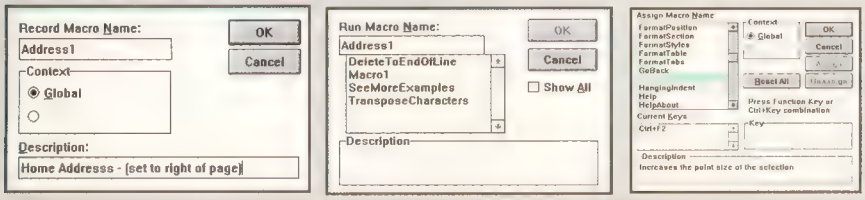
Keyboard Techniques

A common mistake made by first-time word processor users is in using the Return or Enter key at the end of each line. (The key is referred to as the Enter key as it is used to enter a command, and sometimes as the Return key in word-processing because of its similarity with the typewriter carriage return lever.) Although in word processing this key acts in the same way as the typewriter lever that moves the paper up one line, on a computer it is only used to force the word processor to move one line - usually at the

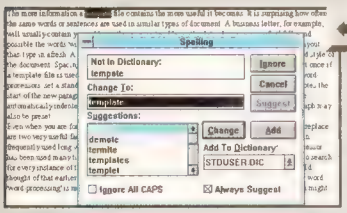
Beginners' Guide - Word Processors



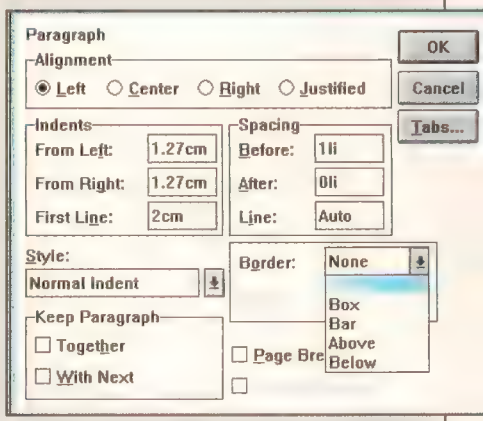
Search and replace *features can be used to personalise correspondence by adding the recipient's name to the document or, as in this example, to make it easier to input frequently used long words.*



Macros *can save time by including frequently used strings of letters. Set the macro option to record and all the keypresses made until recording is stopped become part of the macro. The macro can then be replayed by pressing the assigned key combination. Macros can also be used to carry out any set of commands used by the word processing program.*



Spelling checkers *can be used to correct mis-spelt words and typing mistakes. You can also use the spelling checker to identify and correct deliberate spelling mistakes made to speed text entry. Each word in the document is compared with words contained in the word processor's dictionary, if no match is found the program suggests probable corrections based on similar letter patterns and also phonetic similarities.*

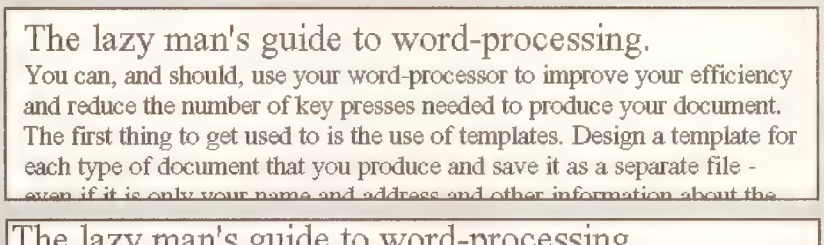


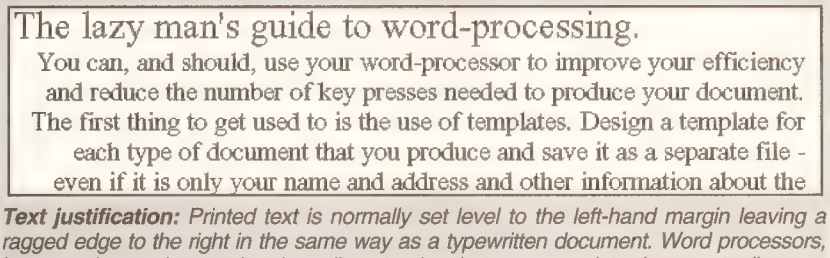
Document layout *is made easier if you predefine the characteristics of paragraphs. An indent for the first line of the paragraph, the position of the paragraph in relation to the page and the space above and below can be set. These settings can be used as the default setting for all the paragraphs of the document or to alter the characteristics of an individual paragraph.*

end of a paragraph. A feature known as Wordwrap takes care of normal line changing, as each line is filled with text. The program is aware of the width of the page and can calculate the number of words that will fit into the space available. The Wordwrap feature can, on some programs, be disabled to let the text overrun the right hand margin.

Editing a document on the computer screen is simply a matter of placing the cursor at the spot you want the alteration and typing in the changes. The way the document reacts to these changes depends on two self-explanatory word processor modes - Insert and Overwrite. The Insert mode, the normal mode for most programs, inserts new text at the point of the cursor, shifting the text to the right and below to make room. Wordwrapping is normally automatic, but with some programs you may need to give an additional Format command to tidy the edited text. Overwrite mode, as its name suggests, erases existing text to the right of the cursor replacing it automatically with your alteration.

Many word processing programs support the use of a mouse. The mouse pointer can be used to place the text cursor anywhere on the document and also to activate menus and commands. Generally speaking, it is easier to learn and use the keyboard equivalents of the mouse movements to activate menus as it saves having to remove your hands from the keyboard. The mouse does, however, come into its own when editing, highlighting and moving blocks of text.


The lazy man's guide to word-processing.
You can, and should, use your word-processor to improve your efficiency and reduce the number of key presses needed to produce your document. The first thing to get used to is the use of templates. Design a template for each type of document that you produce and save it as a separate file - even if it is only your name and address and other information about the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Text justification: *Printed text is normally set level to the left-hand margin leaving a ragged edge to the right in the same way as a typewritten document. Word processors, because the text is not printed one line at a time but as a complete document, allow you to break from convention and set the text level to the right-hand margin or even level with both the left-hand and right-hand margins. In word processing, these options are referred to as left justification, right justification and full justification. Text may also be set centred to the page, leaving a ragged edge on both the left and the right. This feature is often used for headings or for the production of notices, posters and flyers.*

Hidden Instructions

When a word processor records your keyboard actions in memory, it also stores additional information about the layout, spacing and style of the document. If, for example, you changed a word to italic, the word processor would record a mark before the italicised word indicating 'italic from now on' and a second mark after the italicised word so it knows to return the rest of the text to normal style. Although you cannot see these marks on screen (some word-processors do, however, give you the option), you must be aware of their existence when editing a document. Alterations made by placing the cursor between two such embedded marks will conform with those instructions. Thus, if you add or change a letter in an italicised word the alteration will also be italicised. Remember, however, when deleting sections of text, that the instruction marks added by the word processor must also be deleted even though you cannot see them. Say, for example, the text as recorded in the computer's memory showed WORD WORD WORD i WORD n WORD WORD. The word between the i and the n would be recorded as being in italics (i - change to italics, n - change back to normal). To remove the italicised word completely the i must also be removed.

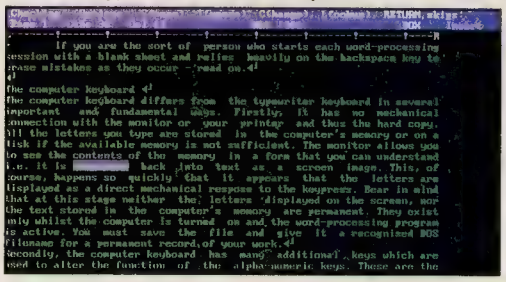
The text attributes embedded in the stored document also apply to spaces. When editing you must be aware that the space between two italicised words is also italicised and that if you

place the cursor on this space (even if the space is a carriage return or tab) any additions will also be italic.

To illustrate the way word processors use embedded symbols, type a paragraph of text and indent the first line with a single tab. Place the cursor at the start of the paragraph immediately to the left of the first letter. Press return to move the paragraph down one line. You will notice that the first line of the paragraph is no longer indented. The tab, however, although not displayed is still in its original position on the line above the paragraph. These invisible tabs, if not removed, are responsible for text mysteriously jumping to an unexpected position. To prove that the tab mark is still there place the cursor to the left of the first word of the paragraph and press the Backspace key - the paragraph will jump to its original position with the indent in the expected place. Repeat the above exercise by pressing Return to move the paragraph down one line and leave the invisible tab mark behind. If you then take the cursor up one line and press the delete key you will have deleted the tab. You can prove this by going back to the start of the paragraph and pressing the Backspace key. This time the paragraph will jump up one line, but there will be no indent.

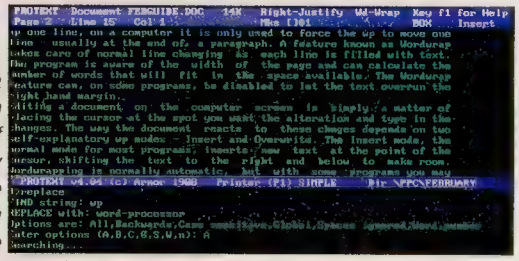
A typical DOS-based word processor

Some word processing programs use block markers to identify the position of a selected portion of the document. The identified block is ready for the usual editing options - cutting, copying, moving and pasting. This screen is set to display embedded markers which mark the position of tabs, carriage returns and text attributes. The word 'typewriter' in this example is set to be in italics.



The spelling checker highlights words which are not found in the dictionary. You can manually rectify mistakes or ask the program to search the dictionary and list the probable corrections.

Search and replace options are activated from the command prompt. There are a number of additional options with which you can limit the extent of the search or increase it by ignoring spaces and making the search non case-sensitive. You must be careful not to make the search too general or, as in this example, the 'wp' letter combination in a word such as Pawpaw would be changed to 'Paword-processoraw'!



The lazy man's guide to word processing

You can, and should, use your word processor to improve your efficiency and reduce the number of key presses needed to produce your document.

The first thing to get used to is the use of templates. Design a template for each type of document that you produce and save it as a separate file - even if it is only your name and address and other information about the page layout and design. A template is simply a part-finished document file, a copy of which is opened automatically, leaving the original unchanged. If your word processor does not support template documents, you can still create a template file but when you use it, you must remember to change the file name before saving to disk. The more information a template file contains the more useful it becomes. It is surprising how often the same words or sentences are used in similar types of document. A business letter, for example, will usually contain your address, the recipients address, the date, dear sir, yours faithfully and possibly the words 'with reference to...'. It is easier and quicker to edit words in an existing layout than to type in afresh. A template file will also contain a lot of information about the layout and style of the document. Spacing, tabs, margins, typefaces, type sizes and print options need only be set once if a template file is used, saving valuable time and ensuring conformity. You can, with many word processors, set a standard design for the layout of each paragraph. The Return key which denotes the start of the new paragraph can also trigger off other paragraph attributes. The first line can be automatically indented and line spacing, justification and space above and below the paragraph may also be preset.

Even when you are forced to physically type in words, there are many short-cuts. Search and replace are two very useful facilities found on the majority of word processors. To save time typing in frequently used long words simply type in an abbreviation. In this article the words 'word processor' have been used many times. If the letters 'wp' were typed instead, you could ask the software to search for every instance of the letters 'wp' and replace them with the words 'word processor'. (Wish I'd thought of that earlier!). You could also use the abbreviation 'wpg' for the instances when the words 'word processing' are required. Make sure the abbreviation used is not a proper word which you might use elsewhere in the document. If you are using a lot of abbreviations in a document, keep a note of them beside the keyboard as you can easily produce a lot of nonsense if you accidentally use the wrong abbreviation. Search can also be used to search for a single word or a string of words and letters. Try typing a two letter abbreviation in place of the word antidisestablishmentarianism and you can see the potential time saving.

A good spell-checker program can be used not only to rectify accidental spelling mistakes and typing errors, but also to speed typing input. You only need to type in a close approximation of the word and leave it to the spell-checker to sort out. Don't forget to add technical words and proper nouns that you use frequently to the spell-checker dictionary as this saves 'word not found' messages slowing the spell-check process.

Most word processors support the use of Macros. A macro is a string of instructions executed with a single key stroke. They can be used as short-cuts for all sorts of complex operations and deserve an article of their own. As far as word processing is concerned, macros can be used to automatically send a string of letters to your document. This could, for example, be your address complete with tab and carriage return settings, or a frequently used sentence. You will need to refer to your word processor documentation to find out how to set up a macro.

The cut and paste or copy and paste features can also save time. A section of text which is either cut or copied is moved to a different section of the computer's memory. Cut and paste is used to move the selected text to a new position in the document, copy and paste is used to duplicate a section of text and place the duplicate in a new position.

The computer keyboard also has its own memory and if the computer is busy doing something else or you type too fast, the last sequence of keystrokes (usually 16) is remembered so that nothing is lost.

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SoundBlaster Pro with add-on MIDI kit and Sequencer Plus Software.

only **£146.83** (£172.53 inc VAT)

NEW!

SOUNDBLASTER PRO 16

16bit CD quality sound. 5KHz to 44.1KHz. 4 watts per channel amplifier, volume, bass & treble control. MIDI interface. Fully Backwards compatible.

only **£205.95** (£241.99 inc VAT)

SOUND GALAXY NX

Supports 4 Sound Standards !!

FEATURES	BUNDLED WITH
Soundblaster, Adlib, Covox & Disney compatible	Monologue
MIDI Interface	Galaxy Master
4 watts Power Amp	Band-In-A-Box
ADC Voice recording	NotePlay
Digital Voice Output	Play It By Ear
11 FM Channels	Utilities
Joystick Port	Speakers

only **£81.69** (£95.99 inc VAT)

SOUND GALAXY NX PRO

True stereo sound capability!!

FEATURES	BUNDLED WITH
Soundblaster Pro II, Adlib, Covox & Disney compatible	Monologue
20 Voice True Stereo	WinDat
Line & Mic Input	SoundScript
CD Audio Input	JukeBox
Stereo Digital/ Analog Mixer	CD-Player
MIDI Built-in	Sound Track
Joystick Port	Galaxy Master
	Utilities
	Speakers

£110.63 (£129.99 inc VAT)

GRAVIS ULTRASOUND

True 16bit CD Quality Sound !!

FEATURES	BUNDLED WITH
Fully MPC compatible	UltraSound Studio 8
Soundblaster, Adlib compatible	Windows Drivers
32 Voice Stereo	Audio/Playdigi/ Playfile
Stereo Recording & Output	UltraFli
Wave Table Synth	PlayMIDI
256k Memory	
MIDI interface	

£142.97 (£167.99 inc VAT)

PC Sound Speaker System

This is a powerful speaker system with built in stereo amplifier. The ideal complement for your sound card.

only £31.48 (£36.99 inc VAT)

ROMBO VIDEO DIGITISERS

VIDI PC-12

High Spec low cost solution to quality video digitising. Up to 4096 colours & 16 greyscales!!

Brief Specification:

- 12 Bit Capture system
- Up to 4096 colours
- Takes less than one second to capture one video frame
- 16 grey scale images can be grabbed from moving video
- PAL/NTSC Composite/S-Video inputs & RGB output
- Powerful PHOTOFINISH image editing software FREE!!
- Load/save 24 bit RGB, TIFF, BMP

only £119.99
(£140.99 inc VAT)

VIDI PC-24

Up to 16.7 Million colours & 256 grey scales!!

Brief Specification:

- 24 Bit Capture system
- Up to 16.7 million colours
- Takes less than one second to capture one video frame
- 256 grey scale images can be grabbed from moving video
- PAL/NTSC Composite/S-Video inputs. On screen control
- Powerful PHOTOFINISH image editing software FREE!!
- Load/save 24 bit RGB, TIFF, BMP

only £179.99
(£211.49 inc VAT)

MEDIA-PRO Plus

View, Freeze, capture & edit real-time running video on your PC in full 24 bit colour!!

Brief Specification:

- Full motion TV/Video & sound for Windows 3.1!!
- Up to 16.7 million colours
- Takes less than one second to capture one full colour image
- 256 grey scale images can be grabbed from moving video
- PAL/NTSC Composite/S-Video inputs & RGB output
- Powerful PHOTOFINISH image editing software FREE plus 2 speakers & headphones!!

only £214.99
(£252.61 inc VAT)

N.B. minimum requirements are PC 286 or higher with 1Mb of RAM plus Windows 3.1 and DOS

NEW

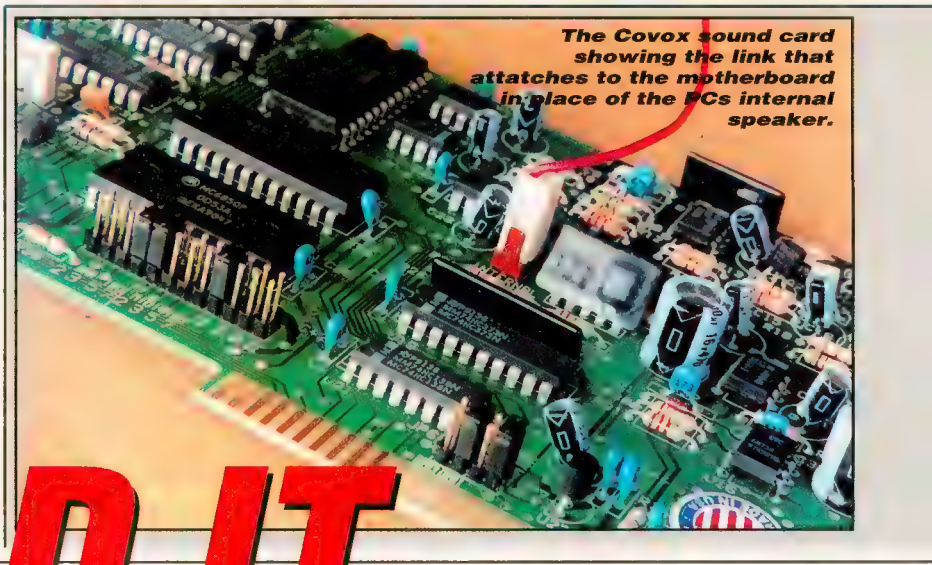
LOGITECH SCANNERS

Scanman 32..£75.99 or £89.29 inc VAT
256 greyscales, DOS Version
Scanman 32..£119.99 or £140.99 inc VAT
256 greyscales, Windows Version
Scanman 32..£169.99 or £199.74 inc VAT
256 greyscales and OCR s/w. DOS copatible
Scanman 256..£169.99 or £199.74 inc VAT
Windows compatible, inc Auto stitch s/w
Colourscanman..£297.86 or £349.99 inc VAT
full colour scanner inc auto stitch s/w

Music Machine

Listen! Beep beep twang beep beep - the sound of high quality sound synthesis in words.

Sound must be the least subjective of our senses. Beauty, they say, is in the eye of the beholder and the common phrase 'it's all a matter of taste' confirms the subjectivity of the senses of taste and smell. Most people would agree on the 'quality' of a single sound, subjectivity only comes into play when sounds are combined to produce 'music' and individual preferences for rock, ragtime or rave come to the fore.



The Covox sound card showing the link that attatches to the motherboard in place of the PCs internal speaker.

BUILD IT

MUSIC MACHINE

This month, in our continuing quest for a PC music machine, Chris Hankins looks at a selection of sound cards and sampling and sequencing software.

The world of computer sound is a jungle. The major problem is that cards such as Adlib and Soundblaster came into the PC market initially to complement games and early attempts at multimedia. Understandably, any improvement on the internal PC speaker was welcome but, unfortunately, this has set an adhoc standard for PC sound in the absence of a more formal agreement. Many sound generating cards are designed to emulate other cards and it is common for manufacturers to boast 100 per cent Adlib compatibility. If you move too far away from this 'standard' you will find yourself limited in the choice of software.

With so many of the big names fighting for a place in the market, one company will hopefully win through with an accepted standard. Perhaps this is the idea behind the Microsoft Windows Sound System that has recently been launched. This is a sound card, rather than a sound generator, designed to add embedded sound to Windows applications (it includes, for example, a proof reader that 'reads' a document back to you!). It does, however, support voice and audio input - only a small step away from a fully fledged PC sound system.

For me, a common standard is more than welcome and well overdue. If this is set by Microsoft, then so be it, somebody has to do it

The Roland SCC-1 GS Sound Card is available from Computer Music Systems (Tel 081 758 0311) for £335 inc. VAT. Not the cheapest, but the range, clarity and realism of the sounds produced is hard to beat. This card is ideally suited to studio work where quality demands are greatest.

The Roland SCC-1 sound card is a combined MIDI processor and sound source on a single expansion card. It is multitimbral, which means that it is capable of playing many notes (or voices) simultaneously. The Roland can produce up to 24 simultaneous sounds to which reverb and chorus effects can be added to give a complete and full sounding finished product.

It conforms to one of the more common standards, the GS format, a system which allows other compatible cards to closely match sounds. The SCC-1 card selects the nearest matching sound to intelligently reproduce sounds generated by other cards that also supporting the same standard.

The SCC-1 MIDI processor exchanges data with external MIDI devices such as a keyboard and stores the data for modification reproduction. The board is fitted with sockets for connection to the external MIDI source, remote stereo amplifier and headphones. We connected to SCC-1 card to an average quality domestic stereo unit and tested the SCC-1's 317 built-in sounds, nine complete drum sets and sound effects set. It is a pity that you cannot hear the results which were very impressive indeed. The Roland SCC-1 card should be given a *Practical PC* Editor's Choice award - as he bought one!

Roland have not produced any software to complement the SCC-1 card, although they provide a set of sound files to demonstrate the capabilities of the system.

An ideal companion to the SCC-1 is the Voyetra Sequencer Plus Gold at £295 inc VAT. Voyetra Sequencer Gold Plus is, again, available from Computer Music Systems and provides professional MIDI sequencing, MIDI data analysing and librarian. Voyetra Sequencer Gold Plus has support for the Roland card in addition to, amongst others, SoundBlaster, Ad-lib and their own Voyetra cards.

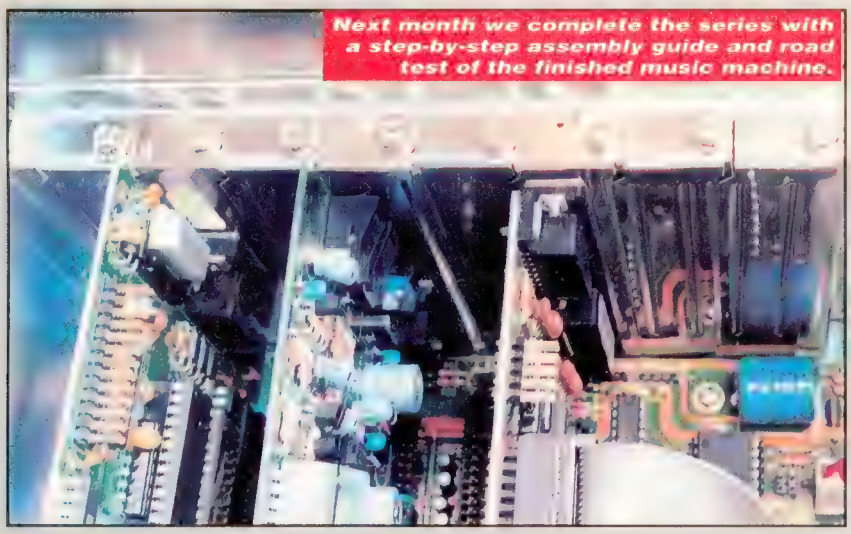
Voyetra Sequencer Gold Plus features over 2,000 independently controlled polyphonic (more than one note at a time) tracks and independent volume, pan and velocity controls.

The sequencer's input can be taken in 'real time' from a MIDI keyboard, or in 'step time' (note-by-note) from either a MIDI keyboard or the computer keyboard. Input can also be taken from any saved file that conforms to the MIDI standard.

The program divides music production into three stages. The first stage gives control of individual track settings: its sounds (as produced by the sound card); its volume; left and right stereo panning, and its key (a track can be duplicated and transposed to produce a harmony). At this stage each track is given a descriptive name, but the contents of the track are controlled in the view screen in which individual voices, their timing and position in the musical measure are set. The third stage, the Edit Screen, controls the pitch, start point and the duration of individual notes of the track. There is no provision for standard music notation, each note is depicted by a line, the length and position on screen of this line representing the note's duration and pitch.

Within Voyetra Sequencer Plus Gold, you

Music Machine



LETTERS
STEP BY STEP
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NEW PRODUCTS

will find all the power and flexibility you would expect from a professional multi-track recording studio. It is easy to use, although the screen display of white on blue is not the easiest to work with. For those with slightly less demanding requirements, a cut-down version of the program, Voyetra Sequencer Plus Junior, is available from the same suppliers.

The Covox Soundmaster II, £176.20 inc VAT, from Covox International (Tel. 0983 867050) is a sound and music card with 11 voices. It is at the heart of a suite of Covox music software which includes DigiPlayer, DigiStudio and VoiceMaster - a voice recognition system. The Soundmaster II is fitted with dual microphone inputs for low level dynamic and high level condenser microphones, a full duplex midi interface (signals travel in both directions simultaneously), a four watt mono amplifier and output socket. Output playback is at 44.1 KHz (the CD Redbook audio standard) via an 8-bit linear phase output filter. The software provided allows for real-time recording and playback, waveform editing and digital signal processing for special effects such as pitch changing, harmonising, flanging, reverb and echo.

The sound quality of the Soundmaster II is good, considering the low number of voices. It is designed to enhance PC sound, games and business presentations rather than professional studio use. It has an internal speaker adapter connection which disables your PC speaker - now that is a good idea.

Soundmaster II also includes useful sound file conversion software that requires an 80386 or greater PC.

The Advanced Gravis Ultrasound sound card retails at £178.71 exc VAT and is available from Optech Ltd. (Tel 0252 714340). The Ultrasound is a 16-bit, 32-voice card that uses a system called wavetable synthesis to produce more accurate sounds. FM synthesis, used by some other cards, creates a voice by frequency modulating one waveform against another to produce the desired sound. This can produce excellent results, but you may notice that one or two instrument voices are not quite as accurate as they could be. Wavetable synthesis is based on the recorded sound of the original instrument, so it is difficult to criticise the accuracy of the sound.

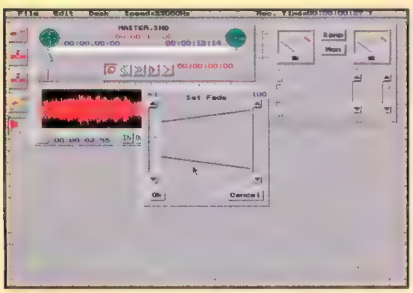
The card itself has a 512k on-board memory (upgradable to 1Mb), an integral 2-watt-per channel amplifier to drive headphones or small loudspeakers, stereo microphone connection, a MIDI connector which doubles as a joystick port, and audio in and out connections for CD input and stereo output.

It uses the CD standard bandwidth of 44.1KHz enabling it to accurately sample and reproduce sounds from a CD. You are able to use lower sampling rates for sounds, such as speech, that do not use the full CD bandwidth. The higher the sampling rate, the more hard disk storage will be needed. The full sampling rate of 44,100 times per second requires 44,100 bytes of hard disk space for each second of the recording - over 2.5Mb per minute!

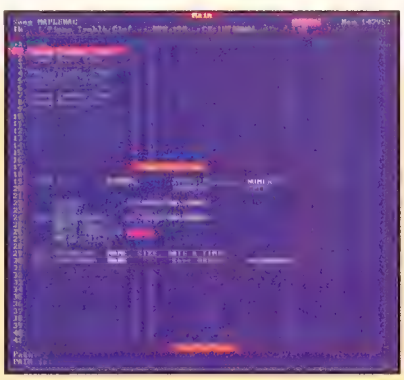
The Ultrasound card is provided with a driver to enable the playing of games and programs intended for Soundblaster and Adlib boards, a driver for Windows 3.1, several MIDI playback routines and an electronic recording studio. The recording studio, Ultrasound Studio 8, is capable of sampling sounds, recording and modifying sections of music and mixing sounds on the same track. The studio is based on two 'reel to reel' recorders, one being used to record each new sound which, when perfected, is added to the master tape.

Any of the cards can be fitted to any PC with a spare expansion slot. This includes the PC/XT although a 286 would be considered to be a more sensible minimum requirement, with a 386 machine strongly recommended for optimum performance.

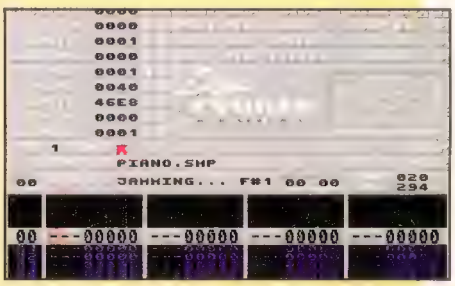
The same procedure is followed for the installation of all the sound cards. Installation is a relatively straightforward process if you are familiar with the inside of your computer. Generally, problems only arise when there is an interrupt address conflict (a number the computer uses to fix the location of each card fitted to the motherboard). This is easily remedied by changing the jumper switch settings although jumpers tend to cause the novice a deal of confusion. All will be explained next month when, at last, we assemble the music machine and put it through its paces.



Gravis Ultrasound provide their own sampling and mixing software - The Ultrasound Studio 8.



The Voyetra Sequencer Plus Gold software showing the main screen.



Digistudio adds sampling and mixing facilities to complement the Covox sound card.

Money Manager PC

The UK's best-selling small business & personal accounts system – Your questions answered

What does it do?

Money Manager is an accounting program which is particularly easy to use and quick to set up. With it you can record all your financial transactions, and produce a wide variety of reports which will keep you well informed and totally in control of your financial situation.

How easy is it to use?

If you can read a bank statement and load a disk into your computer, then you can use Money Manager. You do not need specialised accounting or computing knowledge, just common sense. Feedback over the years from thousands of users of all kinds has been incorporated into the program, the manual and the on-screen help facility, making the program exceptionally user-friendly.

Who uses it?

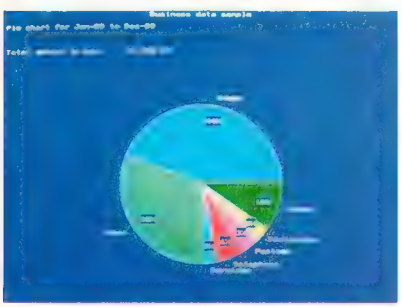
By mid-1991 there were over 50,000 users of Money Manager. Businessmen, doctors, architects, self-employed tradesmen, consultants, solicitors, company department managers, banks, book-keepers, accountants, club treasurers, farmers, schools, expense-account holders etc. Roughly one third of users use it for organising their personal finances.

At such a low price, can it be any good?

The cheaper the software, the better it has to be in order to succeed. At £250 you can afford a few unhappy customers, but at our price we cannot afford hundreds of them.

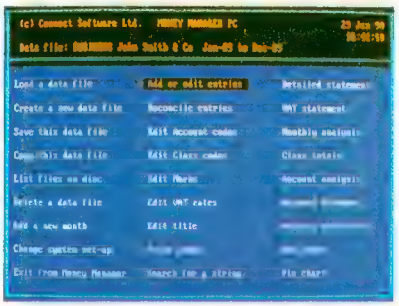
How does it compare with other software?

With enough time, patience and skill, you might set up a spreadsheet and database to do some of what Money Manager does. We think you probably have better uses for your time, patience and skill! Traditional accounting software has its place, but many users like you find it far more difficult, expensive, time consuming and frustrating than they can afford or are willing to tolerate.



Will it run on my computer?

Money Manager will run on all IBM-compatible PCs, from a single floppy-disk mono machine upwards. You can install the program on your hard disk, choose your own colour scheme and use a mouse. *Versions of the program are also available for other computers (please call).*



How do I run it?

Simply type MONEY, and this menu will appear on the screen. "Point" at what you want to do to make it happen. If you do anything wrong, the program will gently tell you so. If you get stuck, press the F1 key for helpful and relevant information to appear in a window on the screen. If you get lost, pressing the Esc key will always bring you safely back to base.

Can I set up the system to suit my own requirements?

Of course! Everyone tends to see and do things in their own individual way, and we have made it very easy to set up the system to suit your own circumstances and preferences.

How many different sets of accounts may I have?

Most other accounting systems restrict you to the accounts of just one company. With Money Manager you may have as many different sets of accounts as you need – business, personal, special projects etc.

How much information can I work on and see at one go?

Each set of accounts contains twelve months' information, with up to 500 entries per month. You can advance the file a month at a time, so that you always have the last twelve months' information at your fingertips to browse through and analyse. All your previous years' accounts will also be readily available on your disk.

How many bank accounts will it handle?

You may define up to 20, which may be bank accounts, or deposit accounts, petty cash, credit cards, trading accounts or general sales and purchase accounts. A special routine allows for the transfer of money from one account to another.

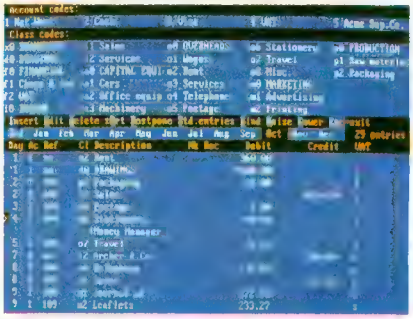
How many types of income & expenditure can it analyse?

You can define up to 50 "Classes" of income and expenditure, and arrange them in groups. You may for example have a group for Overheads comprising Electricity, Rent, Stationery, Travel, Wages etc., or a group for Motoring comprising Petrol, Maintenance, Insurance, Tax etc.

Connect Software Ltd.

How do I actually enter data?

Select the appropriate menu item, and you can scroll up and down through the entries to remind yourself of what has already been entered (see below). Then simply open up a new line and type in the new entry. The computer will check the data as you put it in, and sort the entries into date order if you wish.

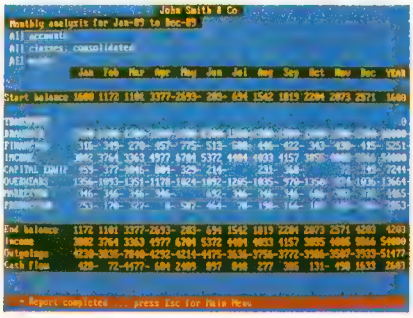


Can I correct mistakes and omissions?

Unlike most other accounting systems, Money Manager is very forgiving, and understands that people make mistakes or forget things. It allows you to correct errors at any time after the entry has been made. You can also enter data for previous months at any time.

How do I produce a report?

Select the appropriate item from the menu, and answer a simple series of questions. You can be as selective as you like – anything from "show me a brief summary of all my transactions" to "list in detail all entries concerning purchases of petrol for personal use using a credit card".



What sorts of reports does it produce?

The information can be displayed in a wide variety of ways to suit your varying requirements. There are detailed statements, showing each entry individually as in a bank statement, with the running balance in the right-hand column. There are various spreadsheet-style reports showing for example a column of totals for each month or for each account, reports showing income, expenditure and cash-flow month by month, etc. And of course there are the graphical bar-charts and pie-charts which can often reveal so much more than the bare figures. The variety of reports is one of the strong features of Money Manager – far more than can be shown here, but if it is useful it is probably included!

JOHN SMITH Ltd

Detailed statement for Jan-90

Account 1 (Nat West)

Day	Ac	Ref	C1	Description	Debit	Credit	Balance
				Starting balance			2,543.49
1	1	so	o2	Rent	360 00-		2,183 49
1	1	011	a2	Printer	458 85-		1,724 64
1	1	so	d0	DRAWINGS	1,500 00-		224.64
3	1	012	o3	Rates	130 45-		94.19
5	1	014	o5	Postage	45 20-		48 99
6	1	015	x0	Trnsfr to Ac 3	142 32-		93 33-
6	1	016	i1	Sales		483.34	390 01
7	1	so	i2	Archer & Co		150 00	540 01
9	1	019	1	Sales		936 35	1,476 36
9	1	0110	i2	Services		150 00	1,626 36
10	1	0111	x0	Transfr to Ac 4	743 26-		883 10
12	1	0113	i1	Sales		839 37	1,722 47
14	1	0114	m1	Journal ad	346 00-		1,376 47
15	1	so	o1	Wages	500 00-		876 47
18	1	0115	o4	Telephone	230.29-		645 18
20	1	0116	i1	Sales		1,243 19	1,888 37
26	1	0121	p2	Cartons	34.00-		1,854 37

Can I print the reports?

Any report can be printed on your printer as well as on the screen. The program can be set up to work with Epson dot-matrix, Diablo daisywheel or HP laserjet compatible printers. In the unlikely event that your printer is not compatible with one of these, you can easily enter the commands required by your particular printer.

JOHN SMITH Ltd

VAT statement for Oct-89

Day	Ac	Ref	C1	Description	Exmt/0-rtd	Taxable	Rate	VAT	Total
OUTPUTS:									
2	1	102	i1	Sales		1,438.52	s	215.78	1,654 30
7	1	so	i2	Archer & Co		156 52	s	23 48	180 00
8	1	107	i1	Sales		202 91	s	30 44	233 35
16	1	1014	i1	Sales		823 91	s	123 59	947 50
25	1	1018	i1	Sales		730 47	s	109 57	840 04
				TOTALS		3,352 34		502 85	3 855 19
INPUTS:									
1	1	so	02	Rent	360 00-		-		360 00-
2	1	101	p2	Packag ng		13 04-	s	1.96-	15 00-
3	2	103	o5	Postage	7 00-		-		7 00-
5	2	104	o6	Stationery		11 79-	-	1 77-	13 56-
5	2	105	o7	Travel		13 50-	s	2 02-	15 52-
11	1	106	o4	Telephone		257 74-	s	38 66-	296 40-
11	1	108	m1	Journal ad		323 91-	s	48 59	372 50-
9	1	109	m2	Leaflets		202 84-	s	30 43-	233 27-
13	3	1011	o7	Travel		20 19-	s	3 03-	23 22-
14	3	1013	06	Printing	1 94-	28 07-	s	4 21-	34 22-
17	5	1015	p1	Raw materials		149 97-	s	22 49	172 46-
22	2	1016	o7	Travel		17 37-	s	2 61-	19 98-
22	2	1017	o5	Postage	48 67-				48 67-
29	3	1019	07	Travel		20 36-	s	3 05-	23 41-
30	2	1020	06	Stationery		7 26-	s	1 09-	8 35-
				TOTALS	417 61-	1 066 04-		159 91	1,643 56-

Summary

VAT due	on outputs	502 85
VAT deductible	on inputs	159 91
Net VAT payable		**342 94**
Value of outputs	(excl VAT)	3 352 34
Value of inputs	(excl VAT)	1 483 65

Will it do my VAT?

A single character entered in the VAT column of each entry is all the system needs to produce a fully detailed VAT report for the month, quarter or year. Doing your VAT return will now only take you a couple of minutes, and you will have at your fingertips all the information you need to keep the VATman happy (!).

And if I'm not VAT-registered?

No problem – simply ignore anything to do with VAT, and the VAT-related features of the program will not get in your way at all.

Is the manual in plain English?

Yes! The manual incorporates feedback from conversations with hundreds of users. We are so confident that the program and manual really are easy to understand that our telephone help-line service is free and indefinite.

What do users say about it?

I should like to say how pleased and impressed I am with Money Manager. It seems to me far simpler, faster and more flexible than any of the other accounts packages I have looked at. I have so far used it to prepare two sets of accounts for a small business, and am delighted with the results. **R.D.H. (Yeovil)**

I would like to congratulate you on an excellent program. I am treasurer of a local cycling club and the help the program gives me in that job is tremendous, and impresses the auditors too! It is also very useful to be able to keep track of my personal accounts, and know to the penny how much I owe to on various credit cards. Keep up the good work! **J.F.N. (Wilts)**

What else has it got?

- Bank statement reconciliation
- Standard entries (eg standing orders)
- Part-VAT/part exempt entries
- Set up to 8 different VAT rates
- Up to 50 "Marks" for extra identification
- Text-string search facility
- Reports can be exported to a disc file
- Context-sensitive help windows
- Pop-up five-function calculator
- Macro facility to record and play back often-used sequences of key-strokes
- 2 sample sets of accounts included for self-training

Do I need so many features?

All the facilities in Money Manager are there because large numbers of people have found a need for them. If there is something you don't need at the moment then you can simply ignore it until the need arises.

money manager PC

How much does it cost?

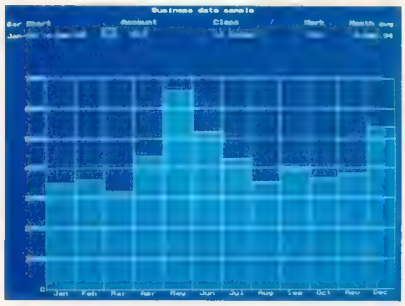
Only **£49.95** incl VAT

RRP £69.95 – Buy direct and save £20!

I have some more questions . . .

Call us on 081 743 9792–there is usually someone intelligent and informed available to talk to you.

I cannot let this opportunity pass without repeating my satisfaction with Money Manager. I am using it for the bookkeeping of several small businesses. Before I retired recently after 40 years in banking, 24 of which were as a branch manager, I would have been delighted if my small (and some not so small) business customers had presented me with figures and statistics of their businesses as produced by Money Manager. It really is a program which, being so easy to use, could save many businesses from the chaos and disaster which can, and so often does, result from poor or non-existent bookkeeping. **R.A.L. (Cheshire)**



Also from

Connect Software Ltd.

Final Accounts

This program will read in your existing Money Manager data and transform it into a full set of end-of-year and management accounts, as normally prepared by an accountant. Asset depreciation, trial balance, P&L, balance sheet, bank reconciliation statement, VAT reconciliation reports are available in a variety of layouts, and the figures for the previous year may be shown alongside those for the current year for comparison. *£49.95*

Final Accounts Professional

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Pentium

REVIEW
NEW PRODUCTS
PREVIEW
GAMES

The 586 is here! Well, its not called the 586 and its not here yet, but at the Comdex computer show in Las Vegas, developers Intel and a number of PC manufacturers were showing the new processor in action. A step towards parallel processing, the new chip is capable of making intelligent decisions concerning which of its virtual two processors will carry out specific tasks. To cover its investment, the chip manufacturers Intel have given a name rather than a number to the new chip, as numbers in the US cannot be copyrighted. The new chip then, named the P5 in pre-production literature, will be named the Pentium.

NEXT GENERATION

John Taylor sets the scene for the arrival of the fifth-generation processor at Comdex, Las Vegas

Just when you thought that the 486 was the state of the art and prices were falling to a point where most people could afford one, along comes a new processor to expand the capabilities of the PC further still. The Pentium Chip (P5) from Intel builds on 15 years of processor design experience to take desk-top computing into the next generation.

When we talk about changing the future we talk about a very big job. Intel says it has the blueprint for that job having nurtured the PC through four generations of processor. Intel has always built its technology the way you would build a building, one floor at a time, each new level acting as a foundation for the rest.

For example, during the first PC decade, the 286 processor did with ease what pushed other processors to the limit. This decade, Windows and desktop publishing arrived and exceeded the capabilities of the 286 processor but with the Intel 386 microprocessor, Windows and Desktop publishing were brought to the main-stream.

This is when users began developing an appetite for doing more and doing it faster. Insisting on a more acceptable response time from their Windows applications, users got the faster response times they wanted with the arrival of the Intel 486 micro processor. Which allowed them to make the most of their existing GUI (Graphical User Interface).

Then, new applications began to emerge pushing the boundaries further binding text and bit-mapping into new and more natural data types. With its advanced power the Intel 486 became the foundation of these new data types and brought applications so rich it has changed the way we work with our personal computer, transforming it into a source of individual productivity.

Today, as we enter the second PC decade Intel 486-based computers are the systems of choice. Allowing documents to be created using rich colours and even embedded sound, allowing talking memos, and so forth, presenting information in a clear concise manner and, with software video, you can even record a commercial. Software video recording is made possible by Intel's' Indeo video technology that allows access to view video on the desktop with no additional hardware. All you need is an Intel 486-based system.

Software video, 3D modelling and true colour graphics are all examples of why users are demanding more power. These demands are being met by the 486 micro processor.

With new, more powerful applications now beginning to emerge, users will need the headroom to run these programs faster. Things like speech recognition, animation, video conferencing, virtual reality and applications not yet imagined will require levels of power that will push the most powerful 486 processors beyond its capabilities. When that happens Intel is ready with the next level of power, a level that is already under construction.

Practical PC offers you a sneak preview of the processor that will bring you significantly more speed. The Intel fifth generation chip will not be called the 586 but the Pentium micro processor. Pentium micro processor systems are still under construction but Intel are close enough to completion that a number of leading computer manufactures offered to show us their prototypes.

Compaq are using the powerful Pentium micro processor as the key component of future Compaq desk-top computers and PC servers. These platforms provide full compatibility with advanced and simpler to use 32-bit software like Windows NT. IBM combines the power of the Pentium micro processor with the performance of the PS/2 module 95.

NEC also previewed their Pentium-based system at Comdex in Las Vegas, running Windows 3.1, proving the system is compatible with $50,000,000 of existing applications. NEC will also offer Pentium micro processor-based work stations and servers.

The Dell workstation was demonstrating the maths capabilities of the Pentium Processor by performing thousands of calculations on a spreadsheet to draw wave forms at impressive speeds. Dell will also offer servers.

The NCR work station was demonstrating the video and graphics power of the Pentium by running 3D animation in real time. NCR will also be building Pentium-based desktops. With the advent of the Pentium micro processor the capabilities shown by the above machines will soon be main-stream.

The Pentium processor offers facilities so advanced that it will become the standard of personal computing and high end engineering and design. Its power comes from 3.1 million transistors that will process more than 400 million instructions per second and provides 10 times the floating point performance of the 33 MHz 486 processor.

The Pentium processor can handle video windows up to four times the size of the 486 processor and the movement is just as smooth.

Rooted in a foundation of a family of proven micro processors constantly growing smaller and more powerful the Pentium will move computing into a new generation.

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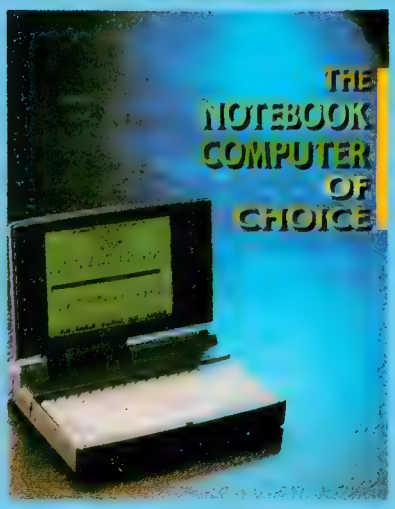

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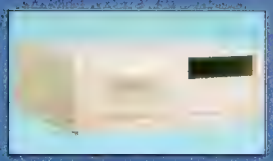

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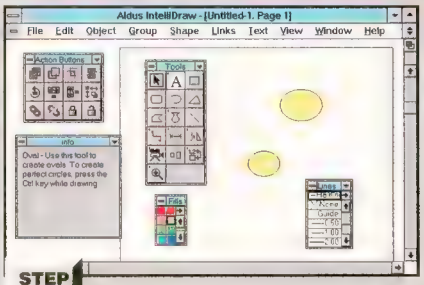
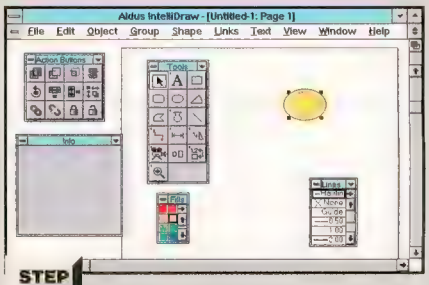
Step by Step - Intellidraw

IntelliDraw is by far the most interesting drawing package to hit the market for a long time. It needs a powerful machine to run it at a reasonable speed but even if you don't have such a machine you need to know about it as a sign of things to come.

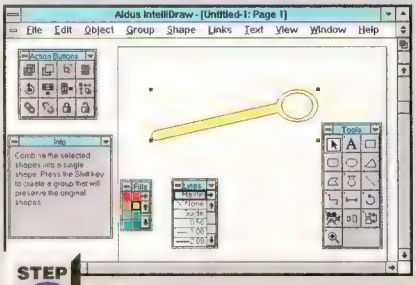
STEP-BY-STEP TO A PAIR OF SCISSORS



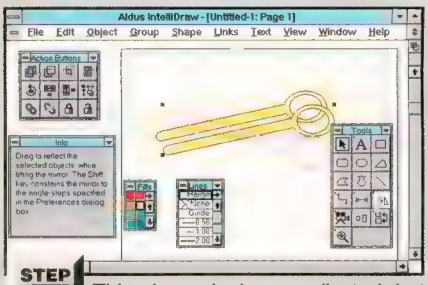
STEP 1 *Drawing the start of the handle is easy using the oval drawing tool. At this stage, the fill colour is yellow but it can easily be changed. Notice that the lower oval is smaller than the top one because it is intended to fit inside.*



STEP 2 *Moving the smaller oval into place is easier than you might expect since guidelines appear as the point that you have picked up comes into alignment with important features on other object.*



STEP 6 *The combine tool is used to join together the blade and the handle to make a single filled object.*

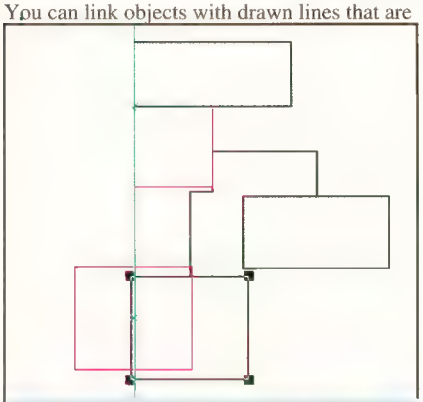


STEP 7 *This picture looks complicated, but all that has happened is that the handle plus blade have been duplicated to make the other half of the scissors.*

STEP BY STEP INTELLIDRAW

The reason IntelliDraw is so novel is that it actually tries to help you draw. Other drawing packages provide you with easy-to-use drawing tools but only IntelliDraw tries to understand the nature of what you might be drawing. For example, in most cases when you draw something new on the screen its position will not be random with regard to the other objects already on the screen. It is highly likely that one corner, edge or the centre of the object you have just drawn will need to be lined up with a corner, edge or centre of one or more of the objects already on the screen. The most help in doing this that other packages give you is a set of guidelines that you have to position manually. IntelliDraw, on the other hand, tries to detect near alignments between the object you are drawing and all the other objects on the screen and places a blue guideline automatically. This makes it feel as if alignments between object correspond to 'sticky' patches on the screen. It is difficult to describe exactly, but I assure you that it works wonderfully when you are drawing.

Automatic guidelines are just the start and to keep this description of reasonable length many important features have to be left out - there are just so many. Objects can be 'tied' to each other in a number of different ways. For example, if you draw two objects you can select Suggest Alignment and if any dimensions are similar it will suggest that you make them identical. You can accept this suggestion and align the two objects. That is if you alter one of the object the other changes to keep the selected dimensions the same. You can link objects with drawn lines that are constrained in some way or other. For example, if you constrain the lines to be only horizontal or vertical then the line joining the objects will be 'steppy'



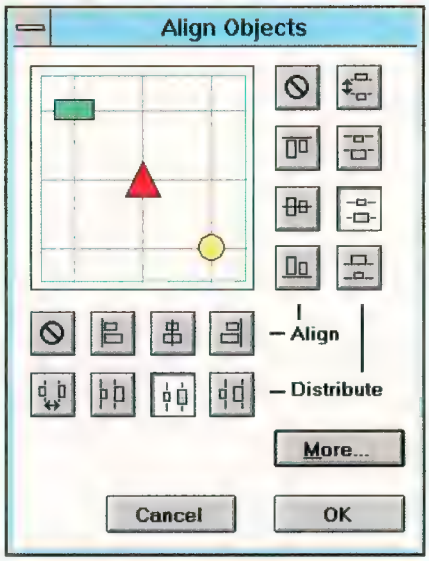
You can see how the connector lines stay attached as the box is moved and how automatic guidelines make alignment easy.

Such 'elastic' connection lines make drawing box charts such as flow diagrams, hierarchy charts, PERT diagrams etc. much easier than using a normal drawing package. As well as connecting lines that stay attached as you move objects there is also a connecting polygon with the same ability. This is the fancifully named Conectigon tool. This can be used for filled areas that always adjust their shape to fill between other objects.

Most drawing packages offer you an alignment tool but it usually doesn't solve the problem of spacing a set of objects evenly. IntelliDraw provides a range of distribute operations that will space objects evenly in an area either aligning them with the top, bottom or centre of each.

What's more, if you move one of the objects all of the other objects are repositioned to keep things correctly aligned or distributed!

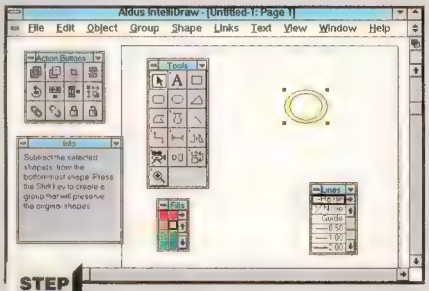
The most wonderful and fascinating of all of the new drawing tools is the Symmetrigon.



As well as aligning objects you can also distribute them!

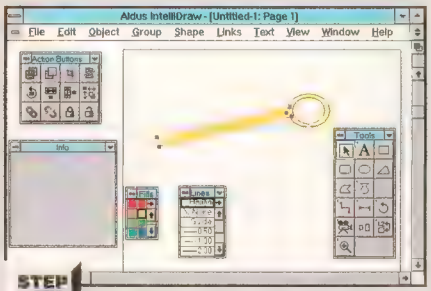
This is a sort of real-time kaleidoscope. As you draw, what appears on screen is reflected in as many mirrors as you specify. For example, if you only specify a single mirror you can draw shapes that are symmetrical about a line - like a vase or light bulb. It is

Step by Step - Intellidraw

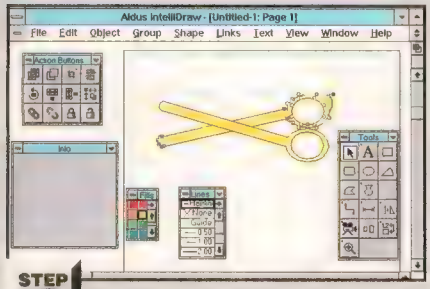


STEP 3 *To make the handle shape, the object subtraction tool is used with both ovals selected. This makes a composite object that results from subtracting the area that the two shapes overlap.*

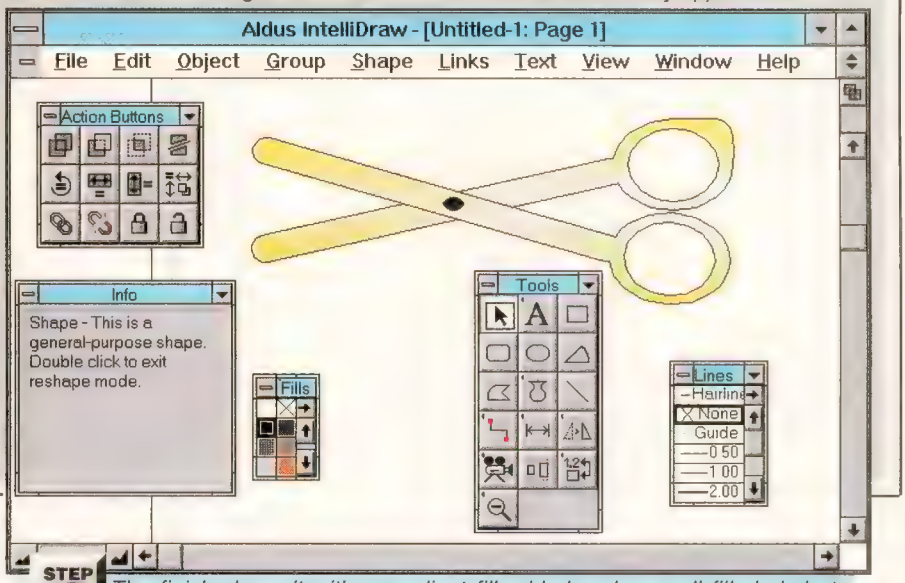
STEP 4 *The blade of the scissors is drawn using the round ended box drawing tool. It is then rotated using the rotate tool.*



STEP 5 *The blade can now be positioned, again with the help of the snap lines that automatically appear.*

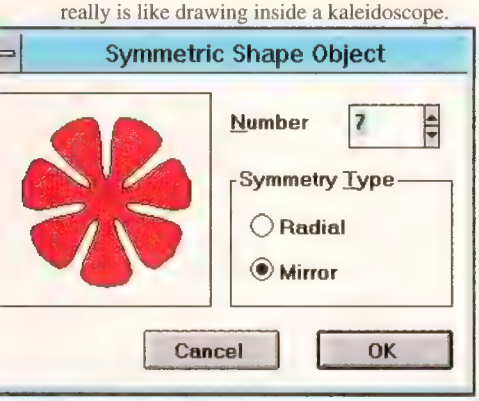


STEP 8 *The reflection tool has been used to turn the copy into a mirror image. Now we can customise each side of the scissors by editing the points that define the curve.*



STEP 9 *The finished result with a gradient fill added and a small filled circle to mark the pivot.*

surprising how many of the things that you want to draw are symmetrical in this way. You can have more fun though if you set the level of symmetry higher than 1. In this case it really is like drawing inside a kaleidoscope.

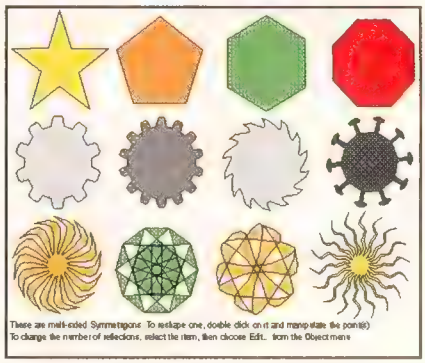


Controlling the number of degrees of symmetry of the symmetrigon.

Although this is fun it also makes drawing lots of shapes like gearwheels and stars easy.

Given that you can draw all sorts of amazing objects, you might not think that you need to edit them much but IntelliDraw has some powerful editing tools. It has all of the things that you find in other packages - reshaping tools, rotation, reflection, resizing etc.- but it also has operations that will combine objects. You can add objects together to make a complex outline or intersect the shapes to produce holes in one object with another. This is a really excellent way to draw. All you have to do is draw all the little bits of an object and push them all together to make a silhouette of the object and then performing one combine operation joins them all together to make an outline that would take you a lot longer to draw in one piece.

There are lots and lots of other features that are worth mentioning - a simple animation facility, linking objects to numbers, automatic dimensioning, a good range of gradient fills, linked text boxes for almost DTP quality text control, and so on and so on... If you are interested in drawing packages then you need to try IntelliDraw. I cannot simply advise you to go out and buy it without trying for the simple reason that it can be very slow on anything less than a really fast machine. It seems to be particularly sensitive to the type of graphics card in use and 256 colour mode often slows it down a lot. If you can cope with the speed problem then I do recommend it. I hope Aldus manage to find a way to speed up the next version so that we can all enjoy IntelliDraw, irrespective of class of machine.



A sample of symmetrigon objects.

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LX400/800, FX800/850	F	3.46	2.94	2.65
Single Colours	F	4.48	4.26	4.05
MX70/80/82, RX80	F	3.46	2.94	2.65
Single Colours	F	4.48	4.26	4.05
FX100/105/286/1000/1050	F	4.42	3.87	3.48
LX1000, MX/RX100/105	F	4.42	3.87	3.48
LX80/86/90, GX80	F	3.31	2.90	2.61
LP1500, LQ1500	F	3.88	3.40	3.06
LQ100	F	3.90	3.41	3.07
LQ200/400/450/500/510 550/570/800/850/870	F	3.46	2.94	2.65
Single Colours	F	4.48	4.26	4.05
LQ1000/1050/1070	F	4.42	3.87	3.48
EX800/LQ2500/2550/860	F	3.78	3.31	2.98
4 Colour	F	8.14	7.12	6.41
FACIT				
4510	F	5.26	4.60	4.14
FUJITSU				
DL900/1100/1200	F	3.89	3.40	3.06
DL2300/3300/3400	F	3.83	3.35	3.02
DX2000/2100/2200/2300	F	3.83	3.35	3.02
HYUNDAI				
HDP910/920	F	3.54	3.01	2.71
HDP1810/1820	F	4.47	3.91	3.52
IBM				
4208, 4202, Prop 24XL	F	5.48	4.80	4.32
4201, 4207, X24, PSI	F	4.88	4.27	3.84
5204, Quickwriter	F	5.52	4.83	4.35
JUKI				
6100	M	4.28	3.75	3.38
MANNESMANN TALLY				
MT80/81, SP80	F	4.39	3.84	3.46
MT80/81, SP80	M	3.83	3.26	2.93
MT130/140/150/280/290	F	5.51	4.82	4.34
MICRO PERIPHERALS				
MP165/200	F	3.46	2.94	2.65
Single Colours	F	4.48	4.26	4.05
MP201	F	4.42	3.87	3.48
MP135/480	F	4.39	3.84	3.46
MP135/480	M	3.83	3.26	2.93
NEC				
Pinwriter P1/P2/P6	F	4.40	3.85	3.47
Pinwriter P3/P7	F	5.42	4.74	4.27
P6+/P7+, P60/P70	F	3.87	3.39	3.05
P2200/P2+	F	3.58	3.04	2.74
P20/P30/P3300	F	4.55	3.98	3.58
OKI				
120/ML182/192/193/195	F	3.57	3.03	2.73
ML320/321/380/390/391	F	3.57	3.03	2.73
ML393	F	10.00	9.50	9.03
OLIVETTI				
DM100/200/99	F	3.72	3.16	2.84
DM105	F	5.29	4.63	4.17
4 Colour	F	7.18	6.28	5.65
DM109/124 Boldcart	F	5.61	4.91	4.42
DM250	F	3.83	3.35	3.02
DM280/290	F	4.65	4.07	3.66
PANASONIC				
KXP1081/1082/1083/1090	F	3.68	3.13	2.82
Single Colours	F	5.80	5.51	5.23
KXP1091/1092/1160/1170	F	3.68	3.13	2.82
Single Colours	F	5.80	5.51	5.23
KXP1180/1190/1592/1595	F	3.68	3.13	2.82
Single Colours	F	5.80	5.51	5.23
KXP1123/1124	F	3.68	3.13	2.82
Single Colours	F	5.80	5.51	5.23
KXP1524/1540/1624/1654	F	4.44	3.89	3.50
QUME				
MSIV/Sprint 7/9/10/11	F	4.22	3.69	3.32
MSIV/Aprint 7/9/10/11	M	3.81	3.33	3.00
RITEMAN				
15	F	3.44	2.92	2.63
C+/F+	F	3.03	2.58	2.32
Inforunner	F	6.33	5.54	4.99
SAMSUNG				
SP0930N	F	3.46	2.94	2.65
SEIKOSHA				
GP100/250X	F	3.40	2.98	2.68
SL90/92	F	5.42	4.74	4.27
SL80/SP180/1000/1200	F	3.47	2.95	2.66
Single Colours	F	4.56	4.33	4.11
SP1600/1900/2000/2400	F	3.47	2.95	2.66
Single Colours	F	4.56	4.33	4.11
SL80/SP180/1000/1200	M	3.47	2.95	2.66
SP1600/1900/2000/2400	M	3.47	2.95	2.66
SHINWA				
CP80	F	4.39	3.84	3.46
CP80	M	3.83	3.26	2.93
STAR				
LC10/LC20/LC100/NX1000	F	2.94	2.21	1.99
Single Colours	F	3.92	3.72	3.53
4 Colour	F	5.29	4.63	4.17
LC24-10/15/20, XB24-10/15	F	3.24	2.75	2.48
Single Colours	F	4.16	3.95	3.75
FR10/15, LC15, NX24-10	F	3.24	2.75	2.48
Single Colours	F	4.16	3.95	3.75
LC24-200, XB24-250	F	3.24	2.75	2.48
Single Colours	F	4.16	3.95	3.75
4 Colour	F	8.13	7.11	6.40
LC200/NX1020	F	2.94	2.21	1.99
4 Colour	F	6.74	5.90	5.31
NB15/24-15/NL15	F	5.28	4.62	4.16
NB24-10/ND/NG/NL10	F	4.56	3.99	3.59
ND15/NR15/NX15	F	5.65	4.94	4.45
SP300	F	4.79	4.19	3.77
TAXAN				
Kaga KP810/815/910/915	F	3.54	3.01	2.71
TRIUMPH ADLER				
MPR7314	F	5.61	4.91	4.42

All prices include UK delivery – just add VAT @ 17.5%. Cheques with order or you may phone using your credit card. All card orders placed by 3pm normally despatched same day (subject to stock) by 1st class post or carrier for next day delivery (UK mainland). Prices subject to change – please check before ordering. No export. Local Authority & Education orders welcome

Dunning Computer Services (Dept. PPC)
13c Sunrise Business Park,
Blandford Forum, Dorset DT11 7TE

REMEMBER – NO DELIVERY CHARGES, JUST ADD VAT AT 17.5%

See bottom of page for order details.

LASER TONERS

Many others available – if yours isn't listed – GIVE US A CALL! Drums, developers etc also available.

YOUR ASSURANCE OF QUALITY – ALL TONERS, PROCESS CARTRIDGES, DRUMS ETC. ARE NEW – NOT REFILLED OR RE-MANUFACTURED

	1	2	5
BROTHER			
HL8	64.50	61.28	58.22
HL4	55.00	52.25	49.64
C.ITOH			
C16 (2 pack)	23.00	21.85	20.76
CI5	14.46	13.74	13.05
CANON			
LBP 811	64.50	61.28	58.22
LBP4	55.00	52.25	49.64
CITIZEN			
106	43.90	41.71	39.62
110/110+/112	18.50	17.58	16.70
Prolaser/Proscript 12	87.20	82.84	78.70
DATA PRODUCTS			
LZR650	35.00	33.25	31.59
LZR1200	18.92	17.97	17.07
EPSON			
EPL4100	64.40	61.18	58.12
GQ3500/5000	13.45	12.78	12.14
FUJITSU			
RX7100	89.50	85.03	80.78
RX7200 (4 pack)	38.36	36.44	34.62
HEWLETT PACKARD			
L'Jet II/III	64.50	61.28	58.22
L'Jet IIP/IIIP	55.00	52.25	49.64
IBM			
4216/5216	13.45	12.78	12.14
KODAK			
Extaplus 7008 (2 pack)	23.00	21.85	20.76
MANNESMANN TALLY			
MT910	16.46	15.64	14.86
MT904/905/906 (2 pack)	23.00	21.85	20.76
MT911 (2 pack)	26.64	25.31	24.04
NEC			
LC800 series	13.76	13.07	12.42
S60/60P/62P	107.94	102.54	97.41
OKI			
Laserline 6	13.45	12.78	12.14
OL400/800/830	20.35	19.33	18.36
OLIVETTI			
PG108/208	64.50	61.28	58.22
PG306/308 (2 pack)	23.00	21.85	20.76
PANASONIC			
KXP4450	21.50	20.43	19.41
KXP4420	26.98	25.63	24.35
KXP4430	27.11	25.75	24.46
RICOH			
6000	13.45	12.78	12.14
LP1200	74.65	70.92	67.37
SHARP			
JX9500	35.00	33.25	31.59
JX9700	41.50	39.43	37.46
STAR			
Laser Printer 4	55.00	52.25	49.64
Laser Printer 8	64.50	61.28	58.22
TEC			
1035 (2 pack)	23.00	21.85	20.76
TECHNICTRON			
TLP12	18.50	17.58	16.70
TOSHIBA			
Pagelaser 6	13.45	12.78	12.14
XEROX			
4030 Mk II	87.20	82.84	78.70

LASER PAPER

A4 single sheet paper 80gsm for all lasers and copiers.
Packs of 500 sheets

	1	2	5	10
White	7.65	5.65	3.95	3.55
Colours	8.83	6.83	4.73	4.33

(Yellow, Green, Pink, Blue, Vellum)

Price breaks are for total no. of packs ordered – mix'n'match for best discounts

REINK

Reink your own black fabric ribbons with this ever popular DIY re-inking spray. Contains no CFC's. Supplied with full instructions. Save yourself £££'s

Just £11.02 + VAT

LISTING PAPER

Quality plainb white fanfold paper – price breaks are for total no. of boxes ordered. NCR and many others available.

	Qty per box	£ per box 1	2+	5+
11×9.5				
60GSM (M)	2000	15.20	13.20	12.70
70GSM (M)	2000	15.90	13.90	13.40
80GSM (M)	2000	18.20	16.20	15.70
90GSM (M)	1000	12.60	10.60	10.10
11.66 × 9.25 (A4)				
70GSM (M)	2000	17.50	15.50	15.00
80GSM (M)	2000	19.40	17.40	16.90
90GSM (M)	1000	13.95	11.95	11.45
11 × 14.5				
60GSM	2000	17.60	16.60	16.10
70GSM	2000	19.00	18.00	17.50

(M) = Microperforated

LABELS

AVERY LABELS – simply the best! Continuous fanfold with tractor feed holes.

Available 1, 2, or 3 across – please specify.

	£ per 1000 1000	5000	10000
2¾×15/16	4.99	4.25	3.80
2¾×1⅞	5.30	4.55	4.10
3½×15/16	5.02	4.27	3.84
3½×1⅞	6.57	4.85	4.36
3½×1 15/16	8.04	5.64	5.11
4×1⅞	6.75	5.01	4.50
4×1 15/16	9.30	6.24	5.61

Many others available – large labels, small labels, labels for disks, audio, VHS, and much more – just ask!

LASER LABELS

Avery branded laser labels – for total reliability in your laser. Listed below is just some of the labels available.

100 sheets per pack

Labels per sheet	Size	Avery prod. Code
1	7⅜×11⅛	L7167
2	7 13/16×5 5/16	L7168
6	3 9/10×3⅔	L7166
8	3 9/10×2⅔	L7165
12	2½×2 5/16	L7164
14	3 9/10×1½	L7163
16	3 9/10×1⅓	L7162
18	2½×1 5/16	L7161
21	2½×1½	L7160

Per pack 100 sheets	1	2	5
	20.78	18.78	17.98

We stock the full Avery range – please 'phone for details

SPECIAL OFFER – AVERY LABELPRO SOFTWARE £72.75

INKJET CARTRIDGES

	1+	2+	5+
Brother HJ1000	17.85	16.96	16.11
Brother HJ770	13.13	12.47	11.85
Canon BJ10E	17.85	16.96	16.11
Canon BJ130	13.13	12.47	11.85
Canon BJ300/330	13.13	12.47	11.85
Commodore 1260/1270	9.65	9.17	8.71
Diconix 150/300	9.65	9.17	8.71
Epson SQ2500	21.15	20.09	19.09
Epson SQ2550/850	22.50	21.38	20.31
Epson SQ870/1170	26.47	25.15	23.89
HP Deskjet/500	14.20	13.49	12.82
HP Deskjet (Double)	21.20	20.14	19.13
HP D/jet 500 Colour	24.70	23.47	22.30
HP Thinkjet	9.65	9.17	8.71
HP Paintjet	21.00	19.95	18.95
HP Paintjet (Colour)	23.50	22.33	21.21
M. Tally MT90	10.98	10.43	9.91
M. Tally MT91	13.13	12.47	11.85
M. Tally MT98/99	22.77	21.63	20.55
Olivetti JP150/350	14.20	13.49	12.82

D.Ram Chips

64K X 1 - DIP	1.00
64K X 4 - DIP	1.00
256K X 1 - DIP	1.00
256K X 4 - DIP/ZIP	2.80
1MB X 1 - DIP/ZIP	2.80
1MB X 4 - DIP/ZIP	13.00

Cache Ram Chips

32K X 8 -25NS DIP	6.00

Simm/Sip Modules

256K X 9 - 3 CHIP	8
1MB X 8 - 8 CHIP	20
1MB X 9 - 3 CHIP	21
1MB X 9 - 9 CHIP	24
4MB X 8 - 8 CHIP	70
4MB X 9 - 9 CHIP	75
16MB X 8 - 8 CHIP	325
16MB X 9 - 9 CHIP	375
256K X 36	35
512K X 36	60
1MB X 36	100
2MB X 36	245
4MB X 36	350

Cyrix Co-Pro's

80287XL	45
80287XLT	60
80387SX (16/20/25)	57
80387DX (16/20/25)	60
80387DX33	80
80387DX40	110

Expansion Boards

PC XT/AT		
ORCHID		
RAMQUEST 8/16	2MB	140
4MB 190	8MB	280
16MB 450	32MB	780
PC AT		
EVEREX RAM	1MB	90
3000 DELUXE	2MB	120
	3MB	150
EVEREX RAM	4MB	215
10K DELUXE	10MB	390
PS/2 (50,60,70,80)		
ORCHID		
RAMQUEST 16/32	2MB	210
4MB 270	8MB	360

Amstrad Memory

PCW 8256	256K	10
PC 1512 - VER.1	128K	18
- VER.2	128K	10
PC1286/1386/2286;	2MB	50
/3286/3386SX/5286	4MB	95
8MB 205	16MB	350
PC2386/4386	16MB	350

Apple Memory

MAC Classic	1-3M	45
	2MB	46
MAC Classic II/LC	2MB	46
4MB 90	8MB	160
(Video Module)	512K	30
QUADRA 700/900	4MB	90
16MB 320	64MB	1300
(Video Ram Kit)	512K	45
MAC IIci	1MB	27
2MB 46	4MB	90
8MB 160	16MB	320
	64MB	1300
MAC IIfx	4MB	100
16MB 320	64MB	1500
MAC IIsi	2MB	46
4MB 90	8MB	160
MAC II/x/cx; SE30	1MB	27
2MB 46	4MB	90

AST Memory

Premium II 486/	8MB	200
/SX20;386/33;		
Premium 486/25/E/		
/33		
BRAVO 486/25	2MB	60
	8MB	200
Premium 386/25/33	1MB	35
Premium II 386SX/	1MB	35
/20;Premium 386SX	4MB	100
/16; 386/33/T/TE		
Premium 386/C	1MB	35
	4MB	100
BRAVO 286/386SX	2MB	60

Compaq Memory

PRO LINEA	2MB	75
3/25/S/ZS	8MB	190
	16MB	375
SYSTEMPRO;	2MB	70
DESKPRO'S	8MB	220
386/33/L;486	32MB	1250
/25/33/50/L		
EXP.BOARD	2MB	195
386/20/25/e/s		
MODULE	1MB	48
MODULE	4MB	110
EXP.BOARD	1MB	80
EXP.BOARD	4MB	160
386/16	1MB	35
EXP BOARD	1-2MB	135
EXP.BOARD	4-8MB	260
386S		
MODULE	1MB	48
MODULE	4MB	110
EXP.BOARD	1MB	80
EXP.BOARD	4MB	160
286/386/N/S20/	1MB	35
/25M;486/S/16/25/	2MB	60
/33/M	4MB	100
EXP.BOARD	2MB	220
EXP.BOARD	4MB	260
286E	1MB	48
	4MB	110

Commodore

PC286-16/40	2MB	55
	4MB	100
SSL386SX-20	1MB	32
4MB 100	8MB	175
16MB 320		

Dell Memory

420/425/433;	2MB	60
450/de/se/te	4MB	100
8MB 220.00	16MB	360
	32MB	670
425/433/E	2MB	60
	4MB	100
320SX/325P;	1MB	35
325D/333D	4MB	100
310/316/325;	1MB	35
320LX	4MB	100

Hewlett Packard

VECTRA'S -		
ES/12PC;386/16/	2MB	50
20/N		
QS/16S	1MB	30
2MB 50	4MB	95
QS/RS/20/25/C	1MB	30
	4MB	95
386/25PC;	1MB	40
486/PC/25/33/T	2MB	65
4MB 100	8MB	200
APOLLO 9000	4MB	190
SERIES	8MB	325
16MB 570	32MB	1120
APOLLO X	1MB	50
STATION 700/RX	2MB	90
4MB 130	8MB	250

IBM Memory

PS/1 /386SX	512K	30
2MB 60	4MB	100
PS/1 PRO 386SX	2MB	65
4MB 100	8MB	200
PS/2 25/30-286	512K	20
	2MB	60
PS/2 35/40/LS/SX	1MB	35
2MB 60	4MB	110
8MB 195		
PS/2 50Z	1MB	35
	2MB	60
PS/2 55/65/LS/SX	2MB	60
	4MB	110
PS/2 70	1MB	35
2MB 60	4MB	110
PS/2 80	1MB	60
2MB 90	4MB	150
PS/2 90/95 &	2MB	60
56/57/SLC/SX	4MB	120
	8MB	250
RISC SYSTEM	16MB	600
6000 SERIES	32MB	1100
	64MB	2150

Olivetti Memory

PCS 286 &	2MB	55
PCS 386SX	4MB	100
6MB 150	8MB	180

Sun Micro Memory

ELC & IPX	4MB	100
	16MB	320
SLC 386i/250; 4/20	4MB	100
MODEL 4/110	16MB	320
3/60/80;4/40/60/65/75	4MB	100
& SPARC 1 & 2	16MB	320
SPARC 330/370/390	8MB	200
	32MB	650

Zenith Memory

Z-386/20/25/33/33E	1MB	35
2MB 65	4MB	110
Z-386SX/20	2MB	55
Z-486/33ET	4MB	125
	16MB	360

Laptop, Notebook, Palmtop & Portable Memory

APPLE		
POWERBOOK	2MB	65
100/140/170	4MB	125
	6MB	220
MAC Portable	1MB	85
2MB 145	3MB	330
	4MB	460
AST		
Premium Executive	1MB	40
286/12;386SX/20/25C	4MB	100
AMSTRAD		
ALT286/386SX	2MB	55
(0 WAIT STATE)	4MB	105
NC 100	512K	100
1MB 155	2MB	360
COMMODORE		
C286/386SXLT	2MB	75
COMPAQ		
CONTURA 3/20/25	2MB	90
4MB 160	8MB	290
LITE 20 & 25	2MB	105
4MB 150	8MB	330
LTE/286	1MB	45
2MB 60	4MB	150
LTE/386s20	1MB	100
	4MB	160
SLT/286	1MB	50
	4MB	170
SLT/386s20	1MB	60
2MB 80	4MB	135
DELL		
212/320/N	1MB	40
	2MB	60
EPSON		
LT 286E	1MB	60
LT 386SX	2MB	100
NB SL/20/25/25C	2MB	120
	4MB	230
NB 3S	1MB	55
	4MB	120
EVEREX		
TEMPO CARRIER	2MB	80
TEMPO LX/20	2MB	75
Hewlett Packard		
PALMTOP 95LX	512K	100
1MB 155	2MB	360
IBM		
PS/2 N51/SX/SLC	2MB	80
4MB 120	8MB	200
L40SX & N33/SX	2MB	70
4MB 110	8MB	220
OLIVETTI		
QUADERNO	512K	100
1MB 155	2MB	360
PACKARD BELL		
286 NB	1MB	75
	4MB	195
386SX NB	1MB	50
	4MB	100
PANASONIC		
CF 270/370 NB	1MB	40
CFL 280/380/480	2MB	70
4MB 125	6MB	190
PHILIPS		
PCL 203	1MB	80
	4MB	250
PCL 304	2MB	80
	4MB	250
POQET		
PALMTOP PC	512K	100
1MB 155	2MB	360
REEVES		
PC 1000	512K	100
1MB 155	2MB	360

Laptop, Notebook, Palmtop & Portable Memory (...cont)

SANYO		
17/18/NB/6	2MB	75
SHARP		
PC 3000	512K	100
1MB 155	2MB	360
PC 6220	1MB	65
PC 6440	2MB	100
PC 6621/6641/6661	2MB	55
PC 8501 Colourstar	2MB	295
TANDON		
NB/386SX	2MB	60
	8MB	220
TANDY		
1500/2810	1MB	35
Texas Instruments		
Travelmate 2000	1MB	65
Travelmate 3000sx	2MB	55
& 3000 WinSX		
TOSHIBA		
T1000LE/SE/XE	1MB	75
& T2000/SX/E	2MB	80
& T2200	4MB	150
	8MB	275
T1200XE	2MB	75
T1600	2MB	75
T3100	2MB	120
T3100E	2MB	65
T3100SX	2MB	75
	4MB	100
T3200	3MB	110
T3200SX/C	2MB	70
	4MB	100
T3300SL	2MB	80
4MB 140	6MB	195
T4400SX/C	2MB	100
& T6400/DX/SX/C	4MB	195
	8MB	380
T5100	2MB	70
T5200/C/8500	2MB	70
	8MB	230
WALTERS		
NOTEBOOK	4MB	125
ZENITH		
Mastersport 386SL	2MB	80
Mastersport 386SX	2MB	50
SLIMSPORT	1MB	50
& Supersport 286/e	2MB	65
	4MB	120
SUPERSPORT SX	2MB	65
Turbosport 386/e	1MB	50
	4MB	280
Z-NOTE 320/325/L/C	2MB	75
	8MB	250

Printer Memory

APPLE		
Laserwriter II NTX	4MB	100
AT & T		
593	2MB	100
	4MB	140
BROTHER		
HL-8/e/D	1MB	85
	2MB	115
HL-8V	1MB	85
2MB 115	4MB	155
HL-4/PS	1MB	100
2MB 125	4MB	180
CANON		
LBP-4/PLUS	1MB	85
	2MB	115
LBP-8 II/T/R	2MB	65
	4MB	110
LBP-8III/PLUS	1MB	95
2MB 120	3MB	145
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Design Works 1.2

The advent of Windows 3.1 has caused a minor shake-up in many applications - Object Linking & Embedding and TrueType are just two of the features of the environment that software houses have been keen to take advantage of. The fear must be that if your application doesn't use the advanced features of Windows, programs that do will be the better sellers consequently the end user gets better and more functional applications, as exemplified by DesignWorks 1.2, the most recent upgrade to GST's vector graphics application.

WORKING WITH DESIGN

The main screen showing the standard of sophistication of both graphics and text available with minimum complexity

DesignWorks is/was the first tentative step into the Windows environment for Cambridgeshire firm GST and was reasonably well received by reviewers, but with one or two caveats. The most obvious of these was that if fonts were to be provided with any application, it was better if they could be shared by others, and the Typographics fonts supplied with early versions were, if not exactly grotty, not up to the standard users would expect of, say, TrueType or Adobe Type Manager fonts.

In this upgraded version - 1.2 - not only are Typographica fonts **not** supplied, but they have been replaced by Adobe Type Manager 2.x and ATM fonts of the same style of the originals. Added to that is full support for TrueType fonts, which gives the intending user the best of both possible words. To make things even easier, if you have a preference for one font system over the other, in any font dialogue box within DW1.2, ATM fonts are noted as such, with the ATM symbol, and TrueType fonts are annotated with the 'TT' symbol.

Other new features in this version include line styles that have arrowheads to them - not a great thing - but nonetheless useful and a fully resizable floating toolbox. In the screenshots you'll see that the review program's toolbox is sited at the left of the screen as a 'drainpipe', but can be positioned anywhere in the DW1.2 window and with whatever dimensions the user chooses. Very useful.

Other enhancements, such as the mouse pointer changing shape according to the function currently selected and changing curve points to corner points, may be of less use but at the very least point to a great amount of thought being paid to the design of the program.

This reviewer makes no great claims to artistic merit, but is perfectly capable of following a tutorial and picking up skills. It has to be said that the user interface to DW1.2 is of the first order. Within a few minutes of installing the application (which, incidentally, takes rather less than 15 minutes, even on a reasonably slow machine) quite sophisticated logos and graphics of that ilk were appearing on screen courtesy of some simply presented but powerful facilities.

The ability to define some text and have it converted to curves, which can then be edited to distort the shapes of letters, for instance, gives even the novice user the chance to adopt a style similar to that used by Ferrari, where the initial 'F' is elongated. Similarly, importing a bit-mapped graphic in any of the variety of formats DW1.2 supports gives the opportunity to use the very simple tracing tool to trace only selected shapes and pick them out of the bitmap - the second screenshot shows the Windows 3.1 window being picked out of the 3.1 opening logo screen. That tool, particularly, is a far cry from the auto-trace feature in many other vector drawing packages, and will probably be one of the most useful for many users.

The same sort of simplicity applies to almost every aspect of DW1.2 - editing fills and colours could not be easier, given that, if you really don't want to specify the 'mix' for your own colours, a large subset of the Pantone chart is available for instant use. Fills are easy to set up, and once defined demand a name. Thus, you can define fill as 'chainmail' for instance, and know exactly where on your drawing of medieval knights to apply the fill - it isn't going to go on a flag, is it? Best of all for banana-fingered reviewers, the DW1.2's undo seems to go back forever and is not limited to just one step as is the case with so many other programs.

In short, DesignWorks 1.2 is a program that takes a function many other applications have sophisticated and 'simplicated' it. The same level of sophistication is available in the end product, but with much less complexity and a very shallow learning curve. For all of this, you might well expect to pay a premium price, but with a recommended price of £149, which is very likely to be discounted to under the £100 mark, DesignWorks lies in the 'affordable' bracket. One has to be impressed.

FAX BOX

- **Product:** DesignWorks 1.20
- **Price:** £149
- **Publisher:** GST Software
- **Tel:** 0480 496789

Ease of Use 90

Versatility 80

Speed 80

Verdict 85

✓ Simple user interface and excellent intuitivity

✗ None of significance

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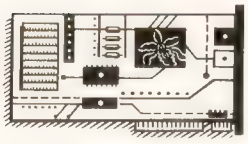

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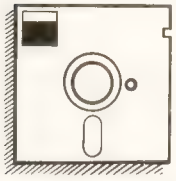

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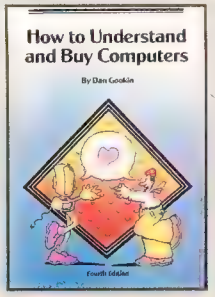
Booklist

In this month's selection we have an introduction to Windows, Dan Gookin's guide to understanding computers and a useful reference book if you want to change from MS-DOS to DR-DOS.

CASE STUDY
NEW PRODUCTS
BOOK LIST
REVIEW



If you are thinking of buying a computer system for the first time, whether for home or business use, then you would do well to start by reading this book. Places to buy computers are not hard to find, there are, after all, plenty of advertisements in the variety of computer magazines to be found on newsagents shelves. Advertisements, can however be confusing if you are inexperienced and as yet unsure of exactly what system will best suit your requirements.

How to Understand and Buy Computers *has been written especially to arm you with what you'll need to know in order to make a wise and trouble-free purchase. There is an explanation of the attributes of the various types of keyboards, monitors, printers and which applications they are best suited to. Advice on ports, the number of floppy drives and size of hard drive you will need is also included, plus an examination of the different kinds software packages on the market (and, more importantly, how to avoid buying software you don't really need). The author finishes by giving answers to some commonly asked questions, unraveling the mysteries of computer jargon with a detailed glossary and directs the reader toward other sources of information.*

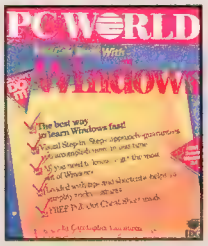
This book is meant to be read from cover to cover and this might sound like a bit of an arduous task to the first time user. This author's light-hearted and humorous approach however, makes the book very enjoyable reading even for the beginner. How to Understand and Buy Computers *is an excellent guide to learning about and buying computers, and should help you to avoid making expensive mistakes.*

Dan Gookin is a prolific computer author having written a number of books on both Macintosh and IBM related topics. He has a weekly slot on a radio talk show advising on computer problems, and is a regular columnist in ComputerEdge *and* Compute! *magazines.*

FAX BOX

Title: How to Understand and Buy Computers
Price: £9.95
Author: Dan Gookin
Publisher: Computer Publishing Enterprises
Tel: 071 407 8891
ISBN: 0-945776-20-9

BOOKLIST



You Can Do It With DOS *(reviewed in the December issue of* Practical PC*), is a book is based on the successful 'learn-by-doing' approach to teaching new skills. Aimed primarily at the beginner,* You Can Do It With Windows *is also suitable for the more experienced user, and is arranged into sections making it easy to find information on more advanced topics.*

Unlike many other books on Windows, this one assumes that the reader may not have used a computer before, and begins with an introduction to DOS, and a brief guide to computer hardware. After all, you do need to know these basics before you can install Windows on your PC. The author then takes the reader step-by-step through all the Windows features.

Subjects include how to work within the Windows environment, using the Program Manager and File Manager, setting up Windows with the Contol Panel and how to improve performance by effective use of memory and disk space.

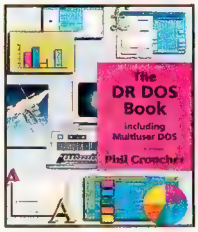
There is also instruction on how to use the Windows accessories supplied with Windows such as the word processor, the Paintbrush program, Cardfile and Calendar.

The book is well supplemented by glossaries throughout, plus plenty of step-by-step exercises, tips, troubleshooting guides and illustrations, making it easy to follow and allowing you to learn the essentials at your own pace.

As well as being an author of computer books, Christopher Van Buren is also the editor and publisher of a number of computer newsletters, and has written several software manuals. At present he writes computer books full time.

FAX BOX

Title: You Can Do It with Windows
Price: £18.45
Author: Christopher Van Buren
Publisher: IDG Books Worldwide
Tel: 021 706 6000
ISBN: 1-878058-37-1



Although MS-DOS is probably the most popular operating system, some people prefer DR-DOS and the extra features that come with it (such as Multiuser DOS for example). The *DR DOS Book* begins by explaining the differences and similarities between the two operating systems, installation and the basics of using DR DOS and MultiUser DOS. The majority of the book, however, covers all the commands in detail, including some of the more advanced options and powerful utilities such as SuperStor and MemMax. There is also an excellent troubleshooting guide, plus some useful information on hard disks and a glossary of frequently used terms.

Although *The DR DOS Book* is not best suited to the beginner, it is written in a simple, and easy to understand style and should provide an ideal reference for the more experienced DR-DOS user.

Author Phil Croucher is a professional pilot, and until recently worked for a software house specialising in enhancements for Multiuser DOS. He currently works in Novell Netware Development.

FAX BOX

Title: The DR DOS Book including Multiuser DOS
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Tel: 0243 779777
ISBN: 1-85058-250-5

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Bios	AMI	AMI	AMI	AMI	AMI
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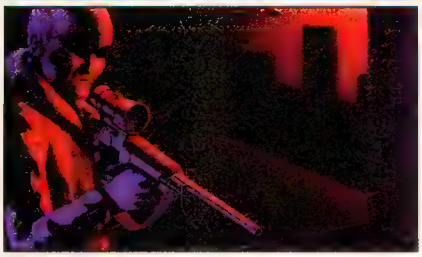
CD-Rom is now receiving more and more attention from the software industry, but with some CDs now costing in excess of £500, which are worth buying, and which should be left in their tidy plastic cases? Robin Matthews casts a critical eye at some of the latest products to arrive on the silvery medium....



Fascination

FASCINATION is a release from Coktel Vision, and is an enhanced version of a PC disk-based game. Both are essentially a graphic adventure: a 'who-dunnit' thriller from France. You control Doralice in her search for the missing love potion. (Can't you tell its French?) The graphics are pretty good, but are basically the same as the disk-based version. You move from location to location, from the skyscrapers of Bayside, to the lingerie boutiques of Coconut Grove. Where this does score over its predecessor is in the addition of 45 minutes of speech for some 20-odd characters, plus good sound board support. Features include 256-colour graphics and some nice puzzles, but not the usual type of graphic adventure. Well, it is the usual French graphic adventure, i.e. nice graphics and sound, usually innovative, but the actual gameplay can be uneven.

FAX BOX

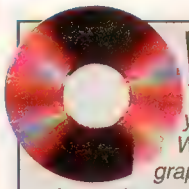
- **Product:** Fascination
- **Price:** £49 + VAT
- **Publisher:** Coktel/EURO CD
- **Tel:** 0743 248590

Graphics 60

Sound 80

Gameplay 60

Verdict 60



WHY CD?

The PC Leisure and Educational Market has exploded in the last few years, with several good quality titles being released almost every week. With the advent of quicker processors, 256 colour high-resolution graphics, sound boards and digitised sound, the PC is all conquering - software houses are becoming more and more innovative, pushing hardware to its absolute limits.

Whilst most aspects of the PC were being ever improved, one area started to become problematical - space. The PC is not just a number cruncher, it is also a brilliant data retrieval system, but certain files take up an enormous amount of room. These files are typically hi-resolution graphics or audio - in particular speech.

As the PC came to be able to handle the new graphics and audio 'standards', products were bursting out of their seams trying to cram as much as possible onto the installation floppies, and using complicated and lengthy install programs to get the program over to the hard disk. Some installation programs can take over an hour, and disk space started to disappear - only a year or so ago a 40Mb hard drive for a PC was a respectable size, now anything below 100Mb seems inadequate.

Space restrictions meant that general reference works tended to be text only, very dry and stodgy, with the occasional illustration only if space allowed.

Commercial software also feels the shoe pinching, with more and more device drivers being available, supporting libraries of clipart, fonts etc. Backing up information also became a nightmare, and more of a neccesity as applications were moved on and off machines to make additional room for the next add-on.

Enter CD-ROM. Most people will be familiar with the compact disk. Its that little silver one that catches the light nicely and relieves Mozart of all his crackles. ROM is read-only memory. The combination of CD and ROM produces a data storage system capable of holding a large amount of information that is essentially to be used for reference. As the Read Only Memory label suggests, alterations to the information cannot be saved to the CD. Its for reading only.

As is usual for a medium in its infancy, there are a number of standards in multi-media compact disk technology. Commodore has its format, CD-TV and Philips CD-I runs on Philips CD-I machines. CD-Rom is the label given to PC compatible CD technology. Make sure you avoid the confusion should you make a purchase!

Why is there all this buzz about CDs, and is it all hype? First, lets look at the advantages of CDs. The main attraction to software developers and users is the sheer magnitude of storage capacity. The early floppy disks were of varying capacity, but those which still survive are the 5.25" variety, 360k and 1.2Mb (1200k), and the 3.5" variety, 720k, 1.44Mb (1440k) and lately 2.0Mb (2000k). Hard disks arrived shortly after the first floppies, and allowed large programs to be loaded in one go without continuous disk swapping. These early 'Winchester' disks were typically 10Mb, but disks have now grown so that as stated above 100Mb+ can be considered the norm.

A single compact disk is currently capable of storing 600Mb, or another way about, the equivalent of 1800 360k floppies! In this way 'big' applications can be accessed by the PC with no call on hard disk space, no lengthy install program, and no huge piles of floppy disks!

Information is not stored on the CD-Rom in the 'traditional' computer disk method ie magnetically, so the disks are much more robust and unless physically broken, are unlikely to corrupt.

The CD-ROM player itself is treated by the PC as an additional drive, and can be addressed as Drive D (E, F etc) depending on the next available letter. The drive can be installed either as an external or internal unit, and fitting is pretty straightforward.

Software-wise, beware! Many companies are cashing in on the CD boom and are releasing 'shovelware': merely copying old software on to CD or tarting up dated software with additional music or graphics. The CDs to purchase are those that are truly 'multi-media' or genuine colections or original works.

CD ROMP

AD AD AD

ESS MEGA

ESS MEGA also from Coktel Vision is not so much a 'whodunnit' as a 'who-will-do-it'. ESS puts you in charge of an orbiting space station project, and the aim of this simulation/resource management game is to put satellites into orbit, construct them, and maintain a space station.

In the first phase of the game, the user is on the ground in the launch area of the International Space Corporation and later, in front of the THAT shuttle. It is up to you, as commander of the shuttle, to modify the craft's orbit, to navigate the weightless shuttle towards its various objectives or to undertake a landing trajectory that will take you back to command HQ. Graphics are OK, the interface is a bit quirky, but this will appeal to those who like their sims on the deep side.

FAX BOX

- **Product:** ESS MEGA
- **Price:** £52 + VAT
- **Publisher:** Coktel /EURO CD
- **Tel:** 0743 248590

Graphics 60
Sound 40
Gameplay 40
Verdict 40

Microsoft's Bookshelf for Windows

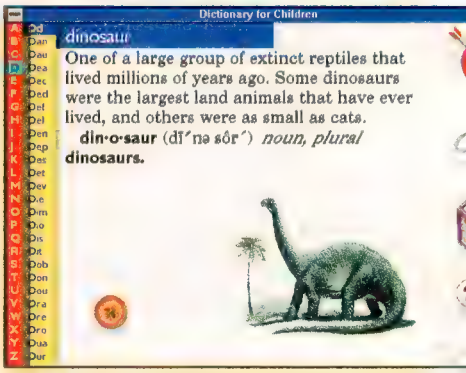
There are lots of general reference books being released on CD-ROM format, some are poorly presented with a very basic 'search' facility and a crude interface. At the other end of the spectrum you have a product such as Microsoft's Bookshelf for Windows. This is a stunning collection of electronic books, converted by Microsoft to work under a Multimedia Windows environment. It is an exceptional information tool for business and home use, consisting of seven well-known reference works. These are, The American Heritage Dictionary (200,00 definitions, biographies, geographic entries and audio recording of word pronunciation), Bartlett's Familiar Quotations, 15th Edition (22,000 classic proverbs, phrases and quotations), The Concise Columbia Dictionary of Quotations (6,000 extensively cross referenced quotations), The Concise Columbia Encyclopedia, 2nd College Edition (15,000 articles with images, animations and sounds), The Hammond Atlas (includes images of all the flags and audio versions of national anthems), Rogets II Electronic Thesaurus and the World Almanac and Book of Facts 1991. In the Quotations for example you can select the examples from JF Kennedy, pick a quote, and actually hear the words being spoken by the former president - this is a weird happening and is almost guaranteed to send a shiver down the spine!

The Atlas is well illustrated and each of the 'books' are mines of information. This type of software will never fully replace the relaxed thumbing of a quality book, but it is a great source of detail, and really comes into its own in the 'search routines'. The books can be accessed individually or ALL can be searched for a piece of information. For example you could specify that you wanted to search all the books except the Heritage Dictionary for entries on 'hurricanes'. Bookshelf will then look through each of the relevant reference works and come up with a full listing of the occasions where 'hurricanes' are mentioned. This list of entries can then be accessed and those sections pulled up to the screen and examined. Any segment may be printed, and a 'history' file allows you to go back and fore as you please. Bookshelf is a superbly presented product, that I whole heatedly recommend.

FAX BOX

- **Product:** Microsoft Bookshelf
- **Price:** £149 + VAT
- **Publisher:** Microsoft/EURO CD
- **Tel:** 0743 248590

Graphics 98
Sound 90
Gameplay 80
Verdict 97


Dictionary for Children
dinosaur
One of a large group of extinct reptiles that lived millions of years ago. Some dinosaurs were the largest land animals that have ever lived, and others were as small as cats.
din·o·saur (dī′nə sôr′) noun, plural dinosaurs.

Macmillan Dictionary for Children

Away from the games, one of the very good reference books around at the moment is the MacMillan Dictionary For Children. This is the full multimedia version of the most widely sold childrens' dictionary in the USA. It contains more than 13,000 word definitions, 1,000 photographs, illustrations or other types of images, 400 sound effects, etc. The topics are deliberately selected to be interesting and relevant to the younger user, and to be used as a home reference book.

On this basis, the interface could be easier to use but the actual contents and eventual presentation more than make up for this. In addition to the word entries, the CD-ROM has some nice touches as it includes some integrated word games such as a spelling bee and a hangman game. Another feature is the appearance of the user's own personal assistant, 'ZAP'. He will guide you through the product and make helpful comments. A good quality product, worthy of a place in the home computer reference library. This product requires 2Mb of RAM.

FAX BOX

- **Product:** Macmillan Dictionary for Children
- **Price:** £39 + VAT
- **Publisher:** Maxwell/EURO CD
- **Tel:** 0743 248590

Graphics 60
Sound 60
Gameplay 60
Verdict 60

AD AD AD

Berlitz Think and Talk Series

The educational possibilities of CD-ROM are well demonstrated in the Berlitz Think and Talk language series from Hyperglot (distributed in the UK by Guildsoft). Berlitz is one of the most famous names in travel and language guides, and these CD-ROMs are combined in a full multimedia format to form a self-teaching course utilising eight CD disks, seven audio discs, and one data disk. These guides are available for French, German, Spanish and Italian, and use in a very effective manner the features of multi-media to present fifty different language lessons, with sound effects, music, audio cues etc - all in CD-ROM audio quality.

The emphasis is very much on the conversational aspect of a foreign language and includes an online bilingual dictionary for each of the languages. Much care has gone into the production and content of these courses, and the lessons are carefully structured and the level of difficulty well set - everything about the product has a sense of quality and there is not much to touch these products in the 'd-i-y' of language leaning. Not cheap, but compared with traditional language courses very good value for money.

FAX BOX

- **Product:** Berlitz Think & Talk
- **Price:** £159.95 + VAT
- **Publisher:** Hyperglot/Guildsoft
- **Tel:** 0752 606200

Graphics 60
Sound 80
Gameplay 80
Verdict 80

Mammals

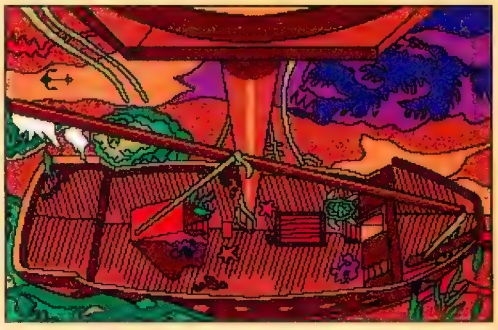
On the education front, Mammals by the Software Toolworks, has been out for some time on PC, but still remains one of the best titles available on CD-ROM. This is a wonderful encyclopedia of all the members of the mammal group, from Aardvark to Zebra. Each creature has its own section, with textual details, 'photographs' and 'films' of the creatures. The graphics are stunning, the 'films' being particularly eye-catching as they are animated digitised graphics, mimicking movement and behaviour. The actions of the mammals are captured in a way no other PC product is capable of, and when you add to this the sounds of the animals, and how to pronounce their names (albeit in a Transatlantic voice) you have a very full and rounded piece of reference and educational software.

Other than the graphics and sound, there is a full data file on each animal, giving basics of group, size, weight, life span etc. There could be a better search and index, but all-in-all this is a superb educational tool. This was a joint project between IBM and the National Geographic Society, and again this falls into the 'should buy' category.

FAX BOX

- **Product:** Mammals
- **Price:** £99 + VAT
- **Publisher:** National Geographic / EURO CD
- **Tel:** 0743 248590

Graphics 80
Sound 80
Gameplay 80
Verdict 80



MANHOLE

From some of the newest CDs to one of the very first, - MANHOLE from Cyan. This is still available and is really a 'shovelware' version of the very 'different' adventure/exploration product that came out on disk. As in the disk version, the game allows you to explore a whole strange new world, inhabited by lots of peculiar characters and 'manholes' linking each area of this odd region. An example would be that you enter a room, and in the bowl is a gold fish bowl, examine the bowl and you are launched into a vast undersea world, with talking walruses and underwater pianos! This should give you the gist of the 'plot' of Manhole - it is full of weird links and peculiar objects. One of the few genuine surreal PC products, it has average sound, EGA graphics only, but is still good for younger users, particularly as it is in parts illogical and excellent for the imagination. As far as adults are concerned, the best advice is probably to try it after a night out at the pub - everything may seem quite normal then!

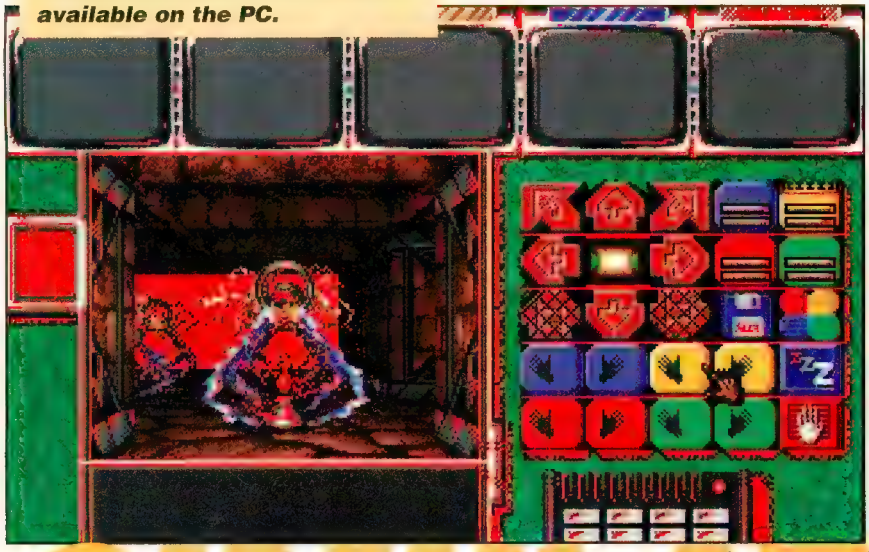
FAX BOX

- **Product:** MANHOLE
- **Price:** £42 + VAT
- **Publisher:** Cyan/EURO CD
- **Tel:** 0743 248590

Graphics 70
Sound 30
Gameplay 70
Verdict 70

AD AD AD

Robin Matthews runs through the latest simulations available on the PC.



SIMULATIONS

Captive

When you can't remember who you are, where you are and even what year it is, then no, its not too much of the Old Peculiar, its Mindscape's PC conversion of their classic fantasy role-playing game -Captive

This game, which was a real biggie on the Amiga, picking up lots of awards, has now been released by Mindscape on the PC. A 'Dungeon Master goes sci-fi' game, you control a party of robots on a trek through the galaxy, visiting planet after planet, and exploring them foot by foot.

The basic plot is that you have been held Captive for two hundred years in an orbiting space station for a crime you didn't commit (bet you it was that one-armed robot you saw taking off from the scene...) and you are desperate to escape from your electronic Alcatraz. You find in your cell a briefcase computer (a bit lucky , eh?) and send out a series of SOS messages. Eventually, a ragged assortment of four robots comes to your aid and you start your bid for freedom!

Captive takes some time to get into and this is aided by an excellent initial walk-through, written by Mindscape UK's very own David Amor (aka POG).

The game is very similar in many respects to the recent PC version of Dungeon Master - same sort of 'real time' combat, lots of monsters and miles of caves to explore. The main view window is, by current standards, too small, the interface a bit tedious, and, all in all, the game feels dated.

Sound Board support is good, the graphics themselves are 'OK' in an EGA-type quality, but nowadays far more is expected from the top products appearing on the PC. This Captive conversion is typical of products initially developed on other platforms, and subsequently converted to the PC - it is almost impossible to maximise the strengths of the PC when the game was initially designed for completely different hardware.

The initial development platform is now almost always the PC and, as a result, software authors can write programs to take full advantage of today's quick processors, 256 colour, high resolution graphics and Sound Card support.

It is not that Captive is a bad product - it will be thoroughly enjoyed by those Captive players who have graduated from the Amiga. But, like Dungeon Master before it, this conversion is just too late when compared with current products appearing on the PC.

FAX BOX

- **Product:** Captive
- **Price:** £34.99
- **Publisher:** Mindscape
- **Tel:** 0444 482545

Ease of Use 50

Value for Money 50

Versatility 50

Verdict 50

Johnny Castaway - Desert Island Disks

(or How to escape from Jeremy Beadle)

Johnny Castaway is an unusual product from the masters of graphic adventures, Sierra. This is not another instalment in the long-running sagas of the Kings Quest, Space Quest or Quest for Glory adventures, but a very, very posh Windows screensaver.

Windows has in-built into its interface a series of 'screensaver' utilities that will come into action if you do not use the keyboard or mouse for a pre-determined period. This is simply to change the characters displayed on

Red Baron Mission Builder

A couple of years ago, an entire platoon of tank simulators arrived on the scene within a very short time of each other - Tank, Heavy Metal, Steel Thunder, Abrams Battle Tank and the one that became the King Tiger - M1 Tank Platoon from Microprose. A little while later, a whole gaggle of World War One flight sims appeared with Blue Max, Knights of the Sky, and the one that subsequently ruled the air - Red Baron.

This superb Dynamix/Sierra release was by far the best WW1 airplane simulator and is probably still one of the top five flight sims of any type on the PC. It was chock-a-block with some great features and included the famous 'floating camera' which allowed you to view the wonderful old bi-planes from literally any angle. The engine was used in the A-10 Warthog simulator, and more recently in the exceptional Aces of the Pacific.

Dynamix have now released a substantial add-on for Red Baron itself, which includes a sophisticated Mission Builder, additional planes and flyers and

the screen and avoid screen 'burning'. This occurs when a PC is left for a time with the same screen displayed, and that display may be 'burned' onto the tube. As soon as a key or the mouse is touched the screen saver disappears and the original application is restored.

The Windows screen savers are all well and good - a trip through space, weird geometric patterns and even a mini Windows logo running around the screen. Several companies have released additional screen savers, notably those in the excellent Icon Hearit software, but they still remain fairly straightforward, if clever, repetitive routines.

Johnny Castaway is, as they say, something completely different - imagine the normal Sierra graphic-type adventure, automated so that it is more like a non-interactive film, and then 'trigger' it whenever the screen saver would normally be invoked. The adventure involves one Johnny Castaway, marooned on a desert island (without Sue Lawley, records, or special items), and follows his escapades and experiences. As with normal screen savers, use of keyboard or mouse will return you to the Windows application you were 'paused' in.

The next time you invoke the screen saver, the story will continue, and Sierra promises a story that 'constantly twists and turns, with hundreds of hilarious situations'.

The reviewer has currently come across pirates, octopuses (?), aeroplanes, fishing difficulties etc. There are special 'events' for certain times of the day, and apparently for major holidays and so forth.

Johnny Castaway is one of a growing band of Windows Utilities, but is genuinely entertaining, and that is its main problem - it is only too tempting that when you return to your PC, or as you are answering the 'phone to become entrapped in the displayed Castaway world and to just sit there and watch his life unfold, rather than ploughing ahead with that fascinating spreadsheet model or typing in that enthralling letter.

If you have the will-power, Castaway can be a very pleasant and controlled distraction and is available now on PC from Sierra priced at £24-99, and expected on the Mac in late November at the same price.

FAX BOX

- **Product:** Johnny Castaway
- **Price:** £24.99
- **Publisher:** Sierra
- **Tel:** 0734 303322

Graphics 80
Sound 60
Enjoyment Compared to other screen savers 90
Verdict 70

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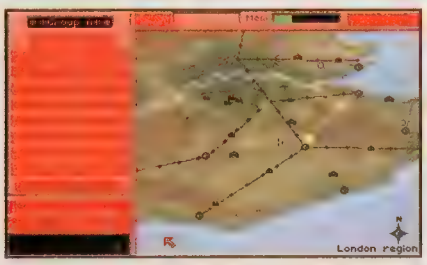
several new features. The new planes are, on the Allied side, the Nieuport 11 the Nieuport 28 and, on the German side, the Halberstadt D.II, the Siemens-SchuckbertD.III and the infamous 'Flying Razor' the Fokker D.VIII. Each has its own very specific characteristics - the Fokker (as per the real thing) having a tendency to fall apart in sharp dives!

New flyers include Charles Nungesser, Sir William Stephenson, Sam Kinkead and 'Fat Herman' himself - Herr Goering. The graphics seem tighter, as do the controls, with Red Baron now supporting either rudder pedals, or a second joystick for rudder control.

Various other minor areas have been 'tweaked' such as being able to control the throttle from the '+' and '-' keys, restarting missions, and deleting pilots.

The Mission Builder itself is the core of the product, allowing you to select a series of maps (including London and several areas of France) and then to select the



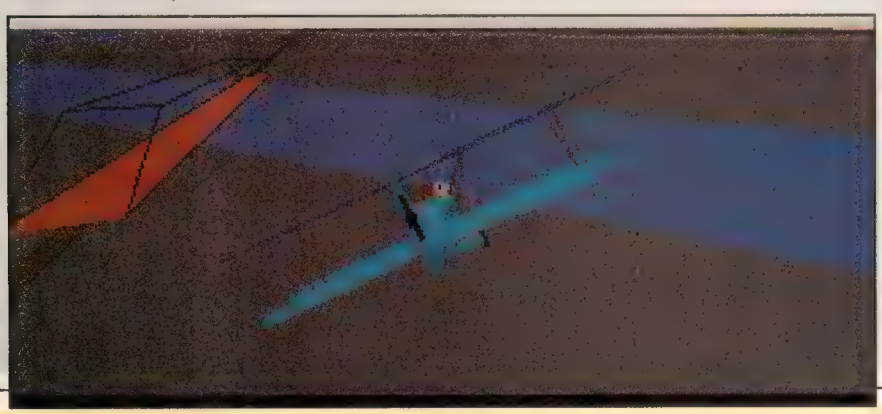
mission type from Dogfighting, Hunting the huge Zeppelins, Bomber escort, Balloons, etc. Way points and ground details are then added, plus giving orders to the enemy forces. Any number of missions can be created by a simple point and click method giving huge variety and lots of challenges.

Other features such as weather and level of difficulty really put the icing on the cake, and the graphics and sound board support are of the highest standard.

It was truly delightful to have an excuse to re-install Red Baron and, like a long-lost friend, its company was soothing and full of joy. With not a head-up-display in sight, no guided missiles or counter measures here, just the wind blowing in the hair and zooming (well spluttering) towards the huge Zeppelins.

Red Baron remains one of the absolute classic PC games and, with this new Mission Disk, it rightly receives a second lease of life, but, there again, had it ever really died?

Hardware requirements are as per for the original Red Baron ie 80286 or better, but the Mission Builder is only available for the VGA version (Red Baron originally shipped in separate EGA and VGA versions, only the latter can be used with the MissionBuilder). The usual Sound Cards are supported, plus theThunderBoard and a mouse or joystick is recommended.



FAX BOX

- **Product:** Red Baron Mission Builder
- **Price:** £24.99
- **Publisher:** Sierra
- **Tel:** 0734 303322

Ease of Use 80
Value for Money 70
Versatility 90
Verdict 80

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PPC 02/93

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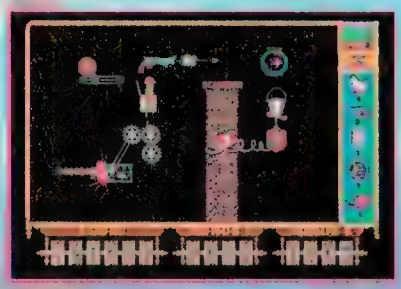

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PLAY-IT

Alone In the Dark

How scared can you get? Can you solve puzzles while under attack from Zombies? How can you survive the night in an evil house? Will the suspence kill you before the monsters do? Where's my mummy?

Every now and then a new game appears which sends the press wild with appraisal and is usually followed with a roaring applause at the ECTS annual awards ceromony. I think Alone In the Dark just happens to be one of those games.

Before I get all excited and explain how the graphics work, I'll give you a quick run down on the storyline. Jeremy Hartwood, a painter, was found suspended by a rope in his old mansion house. No one knows why, perhaps he worked too hard, had a nervous breakdown, or maybe committed suicide to escape the evil surrounding his house. We don't know. Anyway, you can read the whole story for yourself if you decide to buy the game!

You can choose to play as one of two characters, Emily or Edward. Emily is Jeremy's niece who remembers a secret drawer in an old piano and is offset by her deep curiosity to investigate the matter. Edward is a private detective hired by an antiques dealer who asked Edward to list all of the valuables in the house. His tough character keeps him in the house and looks forward to the awaiting adventure.

Which ever character you choose, you'll be able to use weopons and fight using hand-to-hand combat. Now for the graphics description. All of the objects and characters are solid 3D objects which are calculated in real time. Distant objects are small and get larger when they come closer to the camera. Being a 3D game, you can view objects from any angle, or indeed youself! All camera shots are external and the camera's position and angles change when you move to a different location. Some angles are quite bizarre, from up on the ceiling, down on the floor, in the corner of a room, or looking in from a window. This creates a rather spooky atmosphere and because of the many camera angles gives the impression that you are being watched.

The animation of your character is superb with constant movement (even when you are still) and just enough detail to make it seem real. Movement is smooth on a reasonable 386 machine but slow on a 286. I used a 486 for speed and the best animation possible (I really wanted to get into this already classic game). Tension can build up as you open doors and walk round corners. Sooner or later you'll come face-to-face with an evil creature. This too is a real 3D object with moving limbs and a mind of its own. If you have a weapon, kill it quickly, otherwise you must punch and kick it until it vanishes in a puff of smoke.

While avoiding evil bodies that jump through windows and ambush you when you least expect it, you must try your hardest to find clues to the mystery that unfolds before you. Read books when you find them, keep hold of keys, explore dark passages, search cupboards and drawers, and above all - find a weapon before the next creature finds you!

Thrilling 'n chilling stuff indeed. This game from Infogrames deserves much success and I envy the talents of the programmers concerned. You really have to see this game in action to appreciate the animation and perspective. Just try playing this game yourself alone in the dark! The

only thing that I don't like is the silly little protection book that contains pictorial passwords which must be looked up after loading the game. I guess we can't have it all!

The sound effects are great. There's not so many sounds, which could have killed the atmosphere, but the creaking floor boards add to the already chilling atmosphere. It's best played with as few people as possible - preferably by yourself. Before I go back to playing the game I suggest you visit you're local software store and plead them to show you a demo. The best yet, nice one Infogrames!

FAX BOX

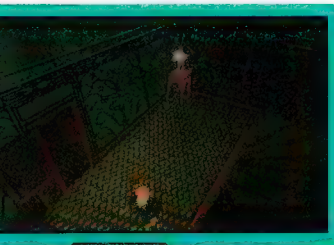
- **Product:** Alone in the Dark
- **Price:** £44.99
- **Publisher:** Infogrames
- **Tel:** 071 738 8199

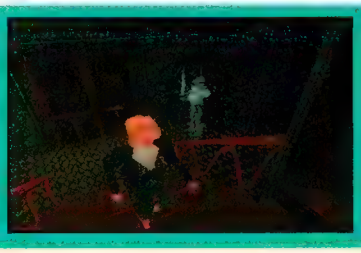
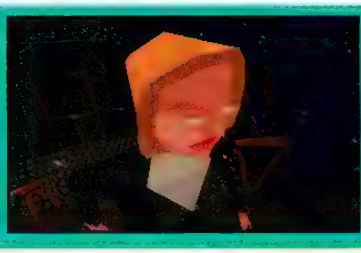
Graphics 99

Sound 91

Gameplay 90

Overall 99



REVIEW
SIMULATIONS
PLAY IT
STEP BY STEP

Mario Is Missing!

Yes, the Mario Brothers have wormed their way on to the PC! You may be expecting some kind of platform game with bouncing mushrooms but instead you need a fair bit of brain power too!

The plot goes something like this: Bowser (an evil character) has captured Mario and has got his evil Koopas (looking just a bit like the Teenage Mutant Nija Turtles) to steal parts of famous monuments from around the world. You play the part of Luigi, Mario's Brooklyn brother, who must return the stolen items to their correct places and eventually rescue Mario.

The adventure takes place in our world (Earth, that is) and Luigi can find himself transported all over the world. At the beginning of the game Luigi will see five doors with a portal behind each one. A portal will transport Luigi to a particular city anywhere in the world. Once he is there he must find out exectly where 'there' is. To do this, you (playing the part of Luigi), can roam the streets and visit various locations. Undoubtably you will come across Koopas making a getaway on a skateboard, bike, ballon, or whatever. You can trap a Koopa by clicking with the mouse pointer, that is before it gets away. The beaten turtle leaves the stolen goods and makes a run for it. The dropped item can be picked up and examined. It will provide you with a clue to which country and city you are currently visiting.

On your way round the city you can talk to people and ask for information. This is done by clicking on the question you want to ask. The locals can be helpful and will tell you most things you want to know. If you come across a taxi token, pick it up and use it for a free taxi ride to any part of the city. This saves time and is a lot quicker than walking. Keep an eye out for locators which will tell you where to find people, Koopas, and Pokeys. Their locations will appear on the map which is partly shown at the bottom of the screen. Pressing M will enlarge the city map to fill the whole screen.

Use the map to locate an Information Booth where you can pick up a leaflet and get some extra clues. If you want to return the stolen object to the rightful owner, the curator, dial his number as listed on the Information Booth. Naturally, you have a videophone in your pocket, just in case. He'll ask some questions and if you get them right you can visit the landmark.

When you figure out which city you're in, click on the Globulator icon (who thinks up these names?) and then click on the world map to select the correct city. If you're right, Yoshi will come and get you. (Yoshi appears to be a giant bird that you can ride, but I've never really got into Nintendo characters!) Once you are comfortably sitting upon Yoshi, your hungry, but cute, feathered friend will eat the Pokey which stands guard in front the portal.

Entering the portal will transport you back to the five doors where you can visit another country and city. However, make sure you have recovered all of the stolen objects and returned them to their curators.

It may sound a little long winded but after you have read the manual (twice) you should understand the plot and the idea. Half way through the first city I discovered that Mario Is Missing! is intended for children! I hastily found the options screen and saw that the level was set to 'ten years' old. There were many other settings including 'adult', which I was no way tempted to select. Indeed, it's a tough game which will certainly educate kids ('Daaad! What country am I in?') and probably educate you too ('Um, why don't you ask your mum, son?').

FAX BOX

- **Product:** Mario is Missing
- **Price:** £39.99
- **Publisher:** Mindscape
- **Tel:** 0444 246333

Graphics 90
Sound 70
Gameplay 80
Overall 80

Contraptions

Zack is on his first day working as a repairman for Gadgetco Inc. He has to repair all of the machinary but this seems impossible since his workmates have borrowed his tools.

The manual that comes with Contraptions is a complete load of old tosh. Really, does it have to explain about bicuspid mastication rates on a P.M.4 cutter? I think not! Luckily for us simple folk the game plot is very straight forward.

Zack must find his tools which are scattered around the factory. He must negotiate puzzles, spring boards, buttons and other contraptions laying in his path. Zack is controlled via joystick or keyboard (preferably joystick because keyboard controls are a weeny bit fiddly). Puzzles are abundant and are only put there to stop Zack walking freely around the 60 or so factory rooms. (The Health and Safety Department would close the place down if they saw it!)

To give you an idea of how Zack would overcome a barrier blocking an exit, you would look at the colour of the barrier and match it with a coloured button. If it was a blue barrier then, hopefully, by jumping onto a blue button the barrier would deactivate. Throwing some levers normally cuts out an electric force field, or jumping onto a steel plate hurls Zack into the air and over an obstruction.

It's a very playable game with some teasing puzzles that could take a while to work out. The only thing that ruined the game for me was the time it took to load each room. I was using a 16Mhz 386 so a faster machine should, in theory, make loading faster. It only took six seconds to load each room but some puzzles require you to operate buttons in several rooms, so you would obviously be running between rooms for a while. Putting that aside, I enjoyed playing with the various contraptions which was both fun and time filling (during boring lunch hours!) The graphics are bold, colourful and it's easy to recognise various objects too. Sound is minimal (you can turn off the dreadful background music) and the effects are rather limited.

Overall, it's a decent game for the curious and mechanically minded PC owner who thinks £20 is a good price. I do.

FAX BOX

- **Product:** Contraptions
- **Price:** £19.99
- **Publisher:** Mindscape
- **Tel:** 0444 246333

Graphics 80
Sound 50
Gameplay 70
Verdict 70

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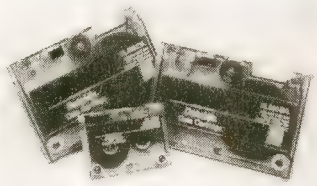

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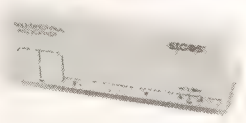

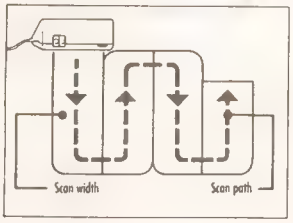

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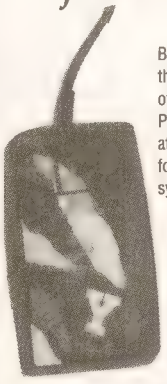

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Magician Graphics Accelerator card

THE MAGICIAN

Most off-the-shelf PCs come equipped with a graphics controller card which is either a card fitted into a vacant expansion slot or built in as part of the motherboard. These cards come with their own VideoRAM memory which determines the number of colours the monitor can display at certain resolutions. If you want more colours from your monitor and faster screen redrawing then the answer is to get a graphics accelerator card.

Here's the sort of colour quality possible using the Magician card.

If you spend any amount of time using photo-retouching programs like Aldus PhotoStyler or vector graphics programs like CorelDRAW, then a graphics accelerator card is an absolute must for your shopping list. The Magician from Datapath is just such a card and at a retail price of £299 it is not frighteningly expensive.

The card itself fits into an expansion slot in the PC and replaces the existing card. If the graphics controller on your PC is part of the motherboard then you may need to disable it by removing a jumper switch, altering a DIP switch or running the BIOS setup program. Check your manual for details.

The Magician is aimed firmly at those who are using Windows 3.0 or 3.1 and who need a faster screen redrawing speed combined with an improved colour display. The card is equipped with 1 megabyte of VideoRAM which allows up to 32,000 colours to be displayed. Because the amount of VideoRAM can only be used to give a higher resolution or more colours there is an inevitable trade-off. If your monitor is capable of a 1024 by 768 pixel resolution then you will only get 256 colours. However, at a 640 by 480 resolution the 32,000 colours offered by the card are simply stunning. Sample files from PhotoStyler, Windows Draw and CorelDRAW looked superb with no dithering. (Seen the box on dithering).

Some PCs these days can already offer this type of performance or may offer a one megabyte graphics card as an optional extra for as little as £20 over the price of a 512K card. The extra bonus with the Magician card is the S3 chip which is a dedicated graphics processor. In graphical environments like Windows the whole screen is a colour bitmap image and any changes force the system to redraw either part or all of that image. When you bear in mind that a 256 colour image at 1024 by 768 pixels is 768K in size then it is not suprising that ordinary monitor controller cards simply cannot redraw the screen image with any speed. This is where the S3 chip comes in and Datapath claim that their card can improve the speed of common Windows functions by over 15 times. Having spent some time loading and editing complicated vector graphics files in CorelDRAW I can vouch for the accuracy of this claim.

The Datapath Magician is a very impressive piece of equipment and must rate as an absolute must either for those users wanting more colours than their 512K card can manage or for those who find the screen redrawing speed of Windows too slow. Of course there are cards on the market with more memory and processor power to drive expensive monitors at high resolutions (like 1280 by 1024) and 256 colours but they cost well over £1000. At £299 the Magician compares well with other cards offering a similar performance and makes full colour programs like CorelDRAW come alive. The street price of around £150 makes this card an even more tempting buy.

Dithering

If you are using a full 24-bit colour photo-retouching or vector graphics drawing program on a system which can only display 16 or 256 colours, Windows will attempt to represent all the screen colours required. It does this by a process called dithering which takes two or more colours from the 16 or 256 colour palette available and places them side by side to give the impression of another colour. Whilst colour dithering enables the user to get a rough and ready idea of the true colours it is not really suitable for anyone involved in full colour work. This is the reason why graphics cards like the Magician and others have been developed.

FAX BOX

- **Product:** Magician Graphics Accelerator card
- **Price:** £299
- **Publisher:** Datapath
- **Tel:** 0332 294441

Specification:

The Magician card supports:

- *1280 by 960 (interlaced) 16 colours*
- *1280 by 1024 (interlaced) by 16 colours*
- *1024 by 768 (non-interlaced) by 256 colours*
- *800 by 600 (non-interlaced) by 256 colours*
- *640 by 480 (non-interlaced) by 32,000 colours*

- *The 16-bit card will support interlaced monitors up to 90Hz and non-interlaced monitors up to 72Hz.*

Software drivers supplied for:

Windows 3.0/3.1, Cadvance, MicroSoft Word 5.0, WordPerfect 5.1, Autodesk ADI 4.1, Generic CADD, MicroStation, CADkey/Datacad, Lotus 123, VersaCAD.

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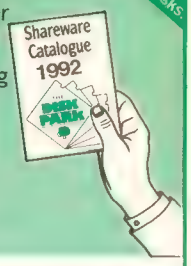

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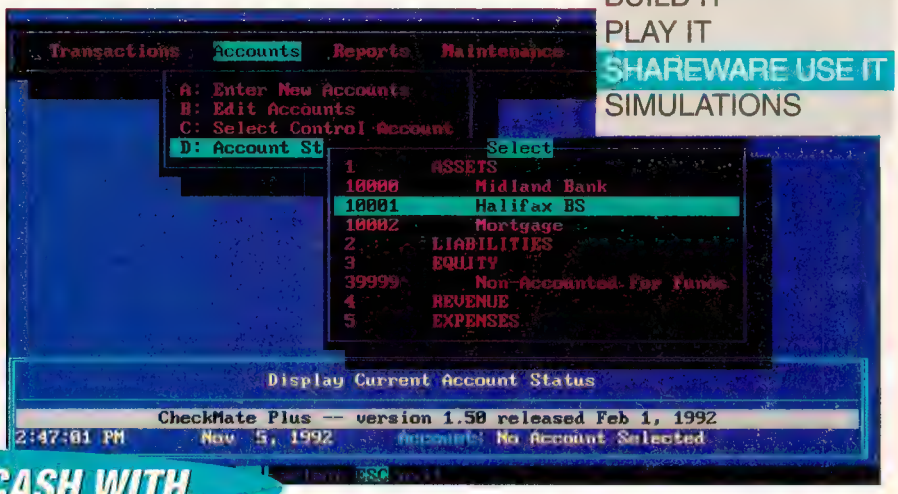
SIMULATIONS

Having trouble managing your personal accounts? It can be a daunting task in this day and age, what with mortgage, life insurance, credit card accounts, fuel bills, and the like. Applying the power of your PC would seem a good idea, but you need user-friendly, reliable software for such a task. Fortunately, shareware can provide it in the form of CheckMate Plus. The program is of US origin, but copes well with all date and currency formats so that's no detriment. All told, life could be made much easier by using this program.



KEEP TRACK OF YOUR CASH WITH...

CHECKMATE PLUS

Don Bradbury has found a shareware program that looks after your personal accounts

CheckMate Plus combines chequebook management, budgeting, accounting, reporting, and graphics, and the entire assembly has a most professional appearance in use.

It is a genuine double-entry accounting system. With it you can generate balance sheets, income statements, budgeting reports, and when it comes to visualising the present state of your finances, the high resolution colour graphing facility will often be found useful as well.

Some neat touches include pre-defined cheques that you find yourself writing frequently, and you can even get the program to remind you when they're due. You can then print them on practically any type of printer - though not in Laser Postscript mode yet - or you can write them by hand. Further, CheckMate Plus will help you reconcile your accounts when you're ready.

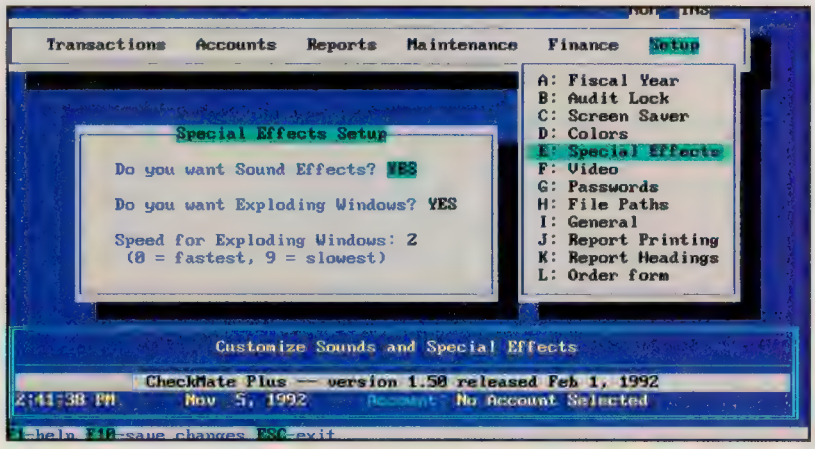
The program lets you attach notes to cheques and even customize the cheque stub to your preference. You can compile reports, preview them on screen, write them to disk, or send them to your printer.

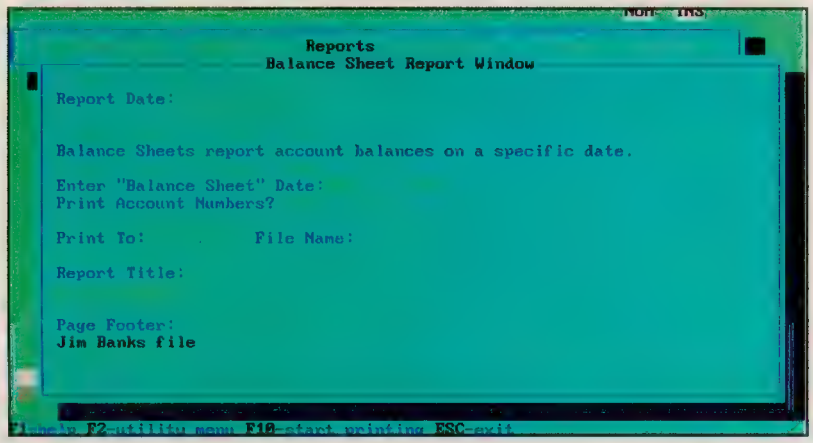
With ease-of-use one of its author's main priorities in the face of some competing programs, CheckMate Plus gives you an excellent array of pull-down menus, pop-up windows, and context-sensitive help, so it's quite easy to find your way around the program. You might be able to use it in a basic way without even looking at the extensive, on-disk documentation, though the program's more advanced options will require a little application.

Some other attributes of this program include up to two hundred active accounts, support for cheques, deposits, withdrawals, debits, credits, and ATM (automatic teller machine) transactions, and a useful array of powerful and flexible reporting options, including standard accounting summaries.

There are data export facilities for Lotus 1-2-3 worksheet format, Microsoft Excel, Borland Quattro, Trius Inc's shareware As-Easy-As, or indeed virtually any other spreadsheet.

One thing I particularly liked was the very practical pop-up financial calculator. It's of the rolling tape variety, and it comes in handy for


Transactions Accounts Reports Maintenance Finance Setup
A: Fiscal Year
B: Audit Lock
C: Screen Saver
D: Colors
E: Special Effects
F: Video
G: Passwords
H: File Paths
I: General
J: Report Printing
K: Report Headings
L: Order form
Special Effects Setup
Do you want Sound Effects? YES
Do you want Exploding Windows? YES
Speed for Exploding Windows: 2
(0 = fastest, 9 = slowest)
Customize Sounds and Special Effects
CheckMate Plus -- version 1.50 released Feb 1, 1992
2:41:38 PM Nov 5, 1992 Account: No Account Selected
F1-help F10-save changes ESC-exit



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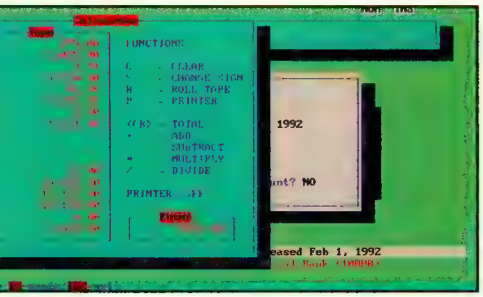

working on loans, deposits, and compounding calculations, as well as full amortisation reports. Usefully, the calculator lets you direct totals to input fields, and the calculator output can also be sent directly to a printer.

You can add password protection to an account if you think it necessary. And when you add the program's budgeting capabilities, the facility for automating transactions, user-defined reporting systems, and many other options, this all adds up to a convenient and powerful package.

CheckMate Plus requires an IBM PC, PS2, or compatible computer running Microsoft DOS 3.0 or above, and at least 640K bytes of memory; restricted memory may lose you some features. It operates best from a hard disk, but can be run on a floppy-only machine with at least one 720K or higher capacity drive. You can also use a MicroSoft, Logitech, Mouse Systems, or other compatible mouse with this program.

Installation is simply a matter of running the Install.exe file on the floppy distribution disk, and answering a few questions to do with your hardware and the directory in which the files should be deposited. If you want, you can opt for data files in a dependent subdirectory.

The program has a very simple built-in text editor for use with stubs or notes, or while you are defining custom reports or cheque layouts. There're no cut and paste facilites in the editor (though you can export text to a file), but it gets the job done quite well enough.

When you run CheckMate Plus for the first time, it creates six special accounts for assets, liabilities, equity, revenue, and expenses. Finally, it automatically creates a detail account which is used to check that the books always balance. This is the standard "non-accounted-for funds" account.

The program documentation details the way you enter, edit, and select data in your accounts files. Checking an account status is also covered, and it's all very conveniently done via program menus.

Utilities

While you're entering transactions, you can press function key F2 at any time to pop up a utilities menu. Depending on the type of entry you are making, various options are offered.

You can add an account, perhaps while splitting a transaction, or edit an old transaction while you're in the middle of entering a new one. If you want to add a transaction to the pop-up menu, you can select the "memorize" option to be able to repeat it later.

Similarly, the Stub Layout option applies to cheques and it lets you determine how to print the stub while printing the cheque. In the automatic mode, CheckMate Plus determines whether to print the Accounts Payable stub, which is a list of accounts across which you've split the cheque, or alternatively your Custom Stub which you enter by simply pressing function key F4.

You can print a cheque you're entering, even

Transactions
Browse Setup Window
Enter dates here to start and stop looking for items to browse.
If you have a lot of active transactions, specifying these dates
can save a lot of time in setting up the browse window.
Starting Date: Nov 5, 1992
Ending Date:
<<< Press to start browsing! >>>
CheckMate Plus - version 1.50 released Feb 1, 1992

as you work on it. Again, it's an option from the utilities menu, but you have to make sure the printer is set up and ready, with a cheque installed, because the program starts to print immediately. Finally, you can rebuild an account, but this option only appears in the menu if the control account actually needs to be rebuild to update the running balances.

While you're editing, you can use certain keys to move more easily through a data file. F7 moves backwards one transaction, and if the filter flag is set, the program keeps moving backward until a match is found. It's worth noting that the program has a special feature called Field Integrity, so that you stay on the current field as you move through the database. If you're on the cheque number field and press F7, you skip over any transactions that don't have a cheque number, such as deposits or withdrawals. All very neat!

Date-activated transactions

A date-activated transaction is one you notify the program you will need to enter at a specified time. It's a super facility, and one you'll use frequently if organisation is not your strong point. It's simply a reminder though; it will not force the program into any other action.

Beside a simple date, you can request a "never" prompt (use it once and then erase the automatic transaction), "monthly" to get a period reminder, or similarly weekly, bi-monthly, quarterly, or yearly. So reminders may be of the day or date type.

Formatting and generating reports is another special forte of this program. Every report you can generate has an options window associated with it. Beside specifying the report date, you can decide whether to print to the screen, the printer, or a disk file. You can also add a title and footer.

If you want to write the formatted report to a disk file in ASCII format, you simply enter "file" in the "print to" field before you start printing. Then you have to provide a legal DOS filename, including the path if necessary.

Many of the program's reports can be printed directly to a disk file in worksheet format, and this will be a great convenience if you need to pull data into your favourite spreadsheet for further manipulation.

Checkmate Plus is software in the very best shareware tradition. Attractively presented and nicely programmed, I think you'll find it useful if your accounts are proving difficult to track. The only things that might possibly annoy the user are the brief speaker click and exploding windows you get as menu items are selected, but you can switch both off and there's no denying the superb programming.

You can register your copy with the author for $60.00 (plus $5 shipping) and receive the latest version, a 208-page illustrated manual, a utilities disk, and some unspecified "special offers", as well as one year of technical support by phone, fax, mail, or CompuServe - if you don't mind the connection charges. But frankly, I don't think you will need such support.

FAX BOX

- **Product:** Checkmate Plus v1.5
- **Price:** £4.65 for each of the two 5.25" disk, £5.15 each for 3.5"
- **Source:** Volumes 3248AB, The Public Domain Software Libary, Winscombe House, Beacon Road, Crowborough, Sussex TN6 1UL
- **Telephone:** 08926 63298

Ease of Use 80

Range of Features 98

Speed 50

Verdict 55

✓ Easy to use, superbly programmed

✗ Very little

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- Mobile with braked castors

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Address .....

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Laserwave Plus

A SOUND EXPERIENCE

Tired of Amiga and Mac users taking the mickey out of the pitiful beep your PC makes? We check out a sound card that will make them eat their words - the Laserwave Plus.

There is a growing trend towards enhancing the basic PC insofar as its sound capabilities are concerned. The plain fact is that the feeble PC beep, usually allied to a tiny (and tinny) speaker is the laughing stock of the computer world - almost every other type of computer has sound capabilities that make the PC more to be pitied than laughed at. Until, that is, the proud owner installs one of today's high quality sound cards.

Fitting a sound card to a PC is not a difficult task - we've covered the installation of expansion cards enough for anyone to be able to do it, and the Laserwave Plus is no exception. As you can see from the photo, there's little to fiddle with on the card - no jumpers to mess about with unless you really want to, because all IRQ and DMA settings are software configurable. The hardened jumper-fiddler can do it the hard way, of course, but the software approach is by far the easiest - so you can plug it in and forget it, you won't need to whip it out and fiddle with it.

The software installation is as straightforward as installing the card. The manual is very explicit on the subject, and covers everything you're likely to need to know in quite some depth, including an enlightened explanation of IRQ, DMA and port assignments. Within the tome you will, like me, discover that the Laserwave Plus is, in truth, a Mediavision Pro-Audio Spectrum card in sheep's clothing (and at a much reduced price).

Kitchen Sink

Three high density disks' worth of installation (and a cuppa) later, you'll have a veritable plethora of programs to peruse. As part of the card's software, there is a DOS sequencer, to drive a MIDI keyboard or synth (a MIDI adapter cable is available as an option), more Windows 3.1 sound mixers than anyone could possible want, a delectable sound sampler, and a utility to allow the more serious-minded user to add both synthesised music and sampled (digitised) sounds to presentation packages. On top of that is a utility that lets you play Amiga MOD files (these are four-track digital sound samples that Amiga users are quite proud of, seemingly, and having heard them, you'll see why).

That's just the software. Hardware-wise, the Laserwave Plus offers two sound inputs for microphone and line input, a CD sound connector, for multimedia applications, and a SCSI CD Drive interface - and the software drivers are included for these. There's also, of course, an output for a pair of stereo speakers that is capable of providing 4 watts per channel and a joystick interface. The only thing missing is the kitchen sink!

Sound Quality

The synthesis of musical sounds is taken care of by a Yamaha sound chipset capable of stereo output with bass and treble equalisation. To get the most out of this set-up, it's best to use a decent pair of speakers - the better they are, the better the sound quality. Without getting into the Hi-Fi magazines' territory, you will get good sound quality from the on-board synthesiser if you use a pair of dual cone speakers. The sound will be very pleasant with few harsh tones and a definite audible bass boost. In DOS mode, bass and treble are controlled by a command line mixing facility called PAS which allows the user to control not only the overall volume, but also the relative volumes of mic input, digitised output, synthesiser output, CD output and bass and treble.

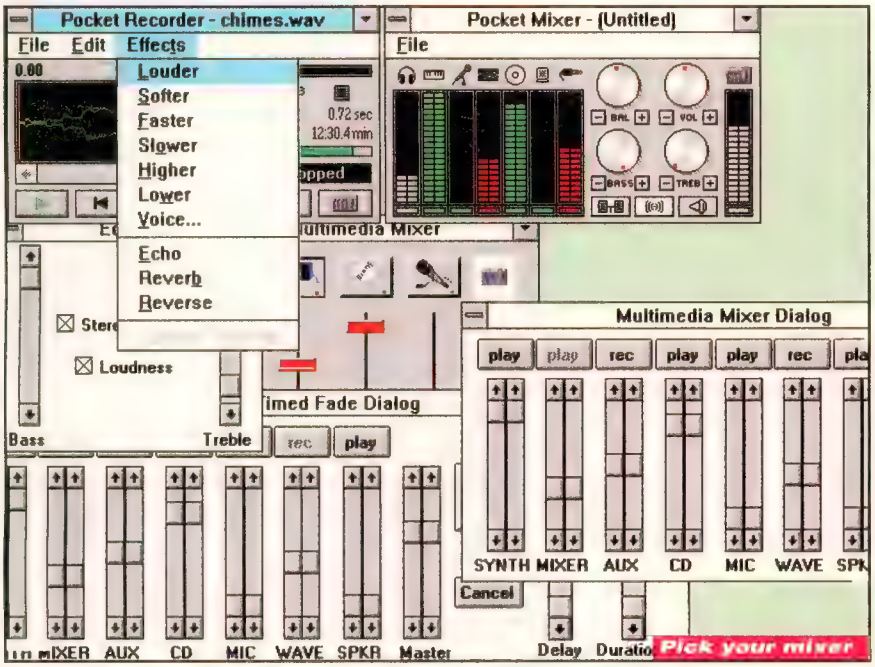
Windows 3.1 users will no doubt be aware that their chosen environment allows for various sound inputs and outputs, including MIDI and sampled sounds (MID and WAV files). The drivers and utilities supplied with the Laserwave Plus install into Windows 3.1 (or Windows 3.0 with Multimedia Extensions) with no fuss - you don' even have to open the drivers section of Control Panel to do the job, as there is an automatic install routine that does it all for you.

After that, the world is your oyster, as they say. You can see from the screen dump that there are plenty of mixers to choose from, and a sound sampling utility that can accept sounds from any of the input ports on the card. A caveat here. On a 286 machine with 2MB RAM (the minimum configuration for a Multimedia PC compatible machine) the Pocket Recorder will refuse to run - it really wants a 386SX and 4MB RAM, which we consider to be a realistic minimum configuration for an MPC machine. Give it that, and you can fiddle with sampled sounds to your heart's content, and in a much more usable utility than Windows 3.1's default sound recorder.

Summary

As the sophistication of PC software continues to increase, more and more

Laserwave Plus



packages, both leisure and 'serious' support add-on sound. Some, including all Multimedia packages, demand a sound card. Try playing lemmings with the PCs beeper, and then try it out on a machine that is sound-equipped, and you'll never want to play it again until you have better sound. The same applies to many other games. Even Windows 3.1, and the up-coming Windows for Workgroups is enhanced by having decent sound capabilities - embedding of sound annotation to documents, and even voice mail, make co-operative working more productive. I certainly would not like to do without my own sound card now that I've had one for some time, and I'm seriously considering changing it for a Laserwave Plus, purely because I find its configurability and standard of sound to be better than the one I already have. You may gather from this that I strongly recommend you to add some decent sound to your PC, and can recommend the Laserwave Plus highly.

FAX BOX

- **Product:** Laserwave Plus
- **Price:** £159 +VAT +P&P
- **Publisher:** Program Solutions
- **Tel:** 091 384 5401

Ease of Use 90

Versatility 90

Value for Money 80

Verdict 80

✓ Excellent sound output and good software

✗ None

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Voyetra Sequencer Plus is arguably the industry standard sequencer for IBM machines. It is in use in many commercial recording studios worldwide. Version 4 supports almost all MIDI interfaces (including the IBM PS/1 MIDI card) and sound cards (including Ad Lib, SoundBlaster & Roland LAPC-1 and SCC1 cards).

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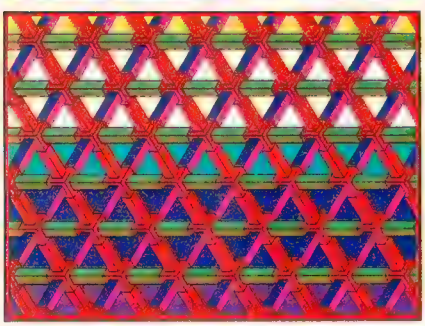
REVIEW
NEW PRODUCTS
SHORT REVIEWS
GAMES

POCKET MONEY PROGRAMS

Simple to use, low cost programs reviewed by David Dorn

Way back, when I was just a lad, it seems, programs for the PC were, almost without exception, single use. That is to say, you bought a word processor and all it did was allow you to type words onto the screen - that and some formatting. If you wanted to spell check it, you had to buy a spelling checker. If you wanted a thesaurus, you had to buy another program to give you that facility. Spreadsheets allowed you only to play with figures - there were no built-in graphing packages, they were something you bought separately. The beauty about those days was that you built up suites of software to suit the way you worked. These days, everything is built-in. Word processors are more like DTP packages, and spreadsheets do just about everything bar make the money for you in the first place.

UK company Software Partners (part of GST, the people behind Timeworks) has stepped into this bells-and-whistles world with a new and quite large range of simple to use, very low-cost programs that are single-minded and, for the most part, single use. Have they taken a step back in time, or are the programs they have available up-to-the-minute? We've picked out a few packages from the Windows range, more or less at random, just to whet your appetite.



Wallpapering your PC

First up we have Wallpaper Art Gallery for Windows, (WAGWIN) a title which ostensibly is single use, but which lends itself to one or two other purposes as well. It is a fact that Windows is catching on, probably because a graphical environment, although slower, at the moment, than a DOS character-based environment, can be a very comfortable way to work, intuitive even. There's also the point that customising the way your Windows display looks is easier than fiddling with ANSI screen commands, which is exactly where WAGWIN comes in. What it provides is a fairly full selection of Windows .BMP files, all neatly packaged and ready to be loaded as wallpaper on your desktop. There's a by-product, in that the images can also be incorporated into documents.

However, by-products are by-products, and we ought to concentrate on its intended use.

A DOS install routine takes care of the process of copying the files and expanding them into your Windows directory. I have to own up and say that I don't really like applications wanting to be installed into the Windows directory, but because of the way Windows handles wallpaper bitmaps, there's little option here - the lot has to go there. And that, really, is that. You can hunt through the various picture files and tiles that are supplied - there are 45 bitmaps and 15 tiles - or use the carousel utility as a startup item to change wallpapers every time you boot Windows. A caveat here. The bitmaps that come with WAGWIN are all for 640x480 displays, so if you're using 800x600 or whatever, you will need to make sure you've got the tile radio button clicked. Either that, or convert all the bitmaps to the correct resolution.

Of course, the conversion exercise would be worthless if the .BMP files weren't of good quality, and, since beauty is in the eye of the beholder, and your tastes, I'd imagine, will be different, But, on the whole, I'd say the piccies are at worst OK, and at best very nice. If you aren't keen on any of them, then they're easily enough deleted, of course, but WAGWIN also gives you a method of gaining more .BMPs for your wallpaper. There's a utility called convert that takes a GIF file and turns it into a BMP. GIFs are fairly widely available, and can be generated by most types of computer, which is probably why there's a dummy Apple Mac screen in there. You could be evil with that...

Summary.

At thirty quid, all but 5p, I originally thought the package was a wee bit overpriced - I'd have said £20 was a better price point for it, but then I expect that it will be discounted down to that level anyway. If that's the case, WAGWIN would make a decent present for a Windows fanatic. If you're into Windows Wallpaper, check out the samples, and decide for yourself.

FAX BOX

- **Product:** Wallpaper Art Gallery
- **Price:** £29.95
- **Publisher:** Software Partners
- **Tel:** 0480 497622

Ease of Use 90

Value for Money 60

Versatility 40

Verdict 65

AD

Practical PC for Value

Words and Pictures

Next in our flying tour of these low cost packages comes one for the exhibitionists amongst you. Since printers became affordable there has been a fascination amongst the computer-using community for producing banners. Once folks had printed a few pages of closely spaced text, the next logical step was to print lots of pages of giant words announcing to the world that Fred and Wilma had just got married, or that winkles were on special offer at only ten bob a pound. Banners on Parade (BoP) takes it a stage further and does it in Windows, adding graphics for visual effect.

Originated by New Horizon, a company totally new to me, BoP is very probably the Windows program that takes up the least space on a rapidly filling hard disk. Its installation is simple and straightforward, like all good Windows installations ought to be, and its documentation is likewise. The only giggle (not a niggle, this time) I've had is that, in common with most of the new GST range, the BoP box is filled mostly with a chunk of pink polystyrene - a case of more is less? Back to the plot...

It's a simple task to produce a banner - there's not a great deal you can alter in the way of system settings, but the bits you do get to play with are nicely implemented. Because BoP is a Windows application, you have access to all the fonts you've got in your Windows system. That could be five or fifty-five, and they could be nice or naff. Given that you have only two lines of text to play with, and therefore a maximum of two fonts to use, gloriously grotty font clashes are unlikely. You edit each line separately, once you've set up how high the banner will be, and have no control over how long the banner will stretch. The only indication of how many sheets the thing will take is given by dotted lines on the screen showing page breaks. It's best run full screen, as well, since running it in a window seems only to give you a partial view of the full-screen image, and no scroll bars appear to allow you to see what's happening in the bits that aren't shown.

It's a fairly minor point, though. Otherwise, you have control over the relative sizes of the top vs. bottom line, and have a number of pre-set shapes that the text can take. These vary from the normal flag and pennant styles (tapering to the left or right) arches, an eye shape and so on. In some ways, these shapes serve to show how versatile the TrueType system in Windows 3.1 really is, since font rendering is perfect even when the text is bent out of all proportion - so if you're still running Windows 3.0, upgrade now!

You can also paste picture files onto your banner. They're best placed on areas devoid of text, since they will overwrite a text area. Three file types are supported - BMP, PCX and TIF(bog standard, uncompressed).

If you're lucky enough to have a colour printer, you can also fiddle with text and background colours. These, again, are pre-set to a small selection, but, noticeably, they include only those colours that normally print well with a three colour ribbon, which, given the price and target audience of the program, is a sensible move.

Print time is very much printer and CPU dependent. If you're running a slow dot matrix printer on a 10MHz 286, you can reasonably expect to have a cup of coffee and a sticky bun before your banner is printed. A fast 486 and a laser printer will, obviously, be a lot faster.

Summary

What we're talking about here is a £50 package which is worth its money. What it lacks is sophistication and complexity, which is no bad thing, in my view. It sets out to do one job, and, within the limitations it sets itself, it does it well. There's not a lot more you can say, is there?

FAX BOX

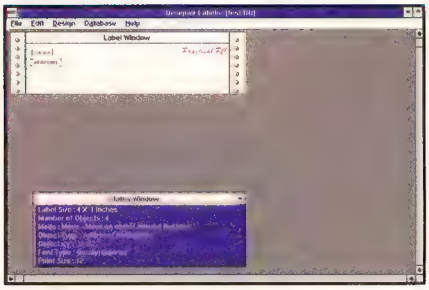
- **Product:** Banners on Parade
- **Price:** £49.95
- **Publisher:** Software Partners
- **Tel:** 0480 497622

Ease of Use 90

Overall Speed 60

Versatility 60

Value Verdict 60



Sticky-Backed Addresses

I have, on occasion, sat with a word processor and spent hours trying to get a set of labels printed. I've written macros to let me print each label with a unique number, set page lengths to the size of the labels plus the gutter between them - in short, I spent too long sorting the problem out, certainly more time than it was worth.

Designer Labels is intended to short-cut the procedure, and allow you to do what you want with labels in a short time, and for the most part, it succeeds.

Like the previous two programs, this, too, runs in Windows, and like BoP, it has a very quick and simple installation routine. In many ways it is a BoP lookalike - the technology must be very similar for the two programs - but it differs in many respects. It's noticeable that BoP is in version 1.0, whilst Designer Labels is at version 1.2, and certainly, Designer Labels is the slicker of the two.

DLabel is primarily aimed at the user who wants to print out a run of mailing labels, or serialised labels for whatever purpose, and for those two tasks, it is admirable. Laying out a label is very simple. At its most basic, it's simply a matter of typing a bit of text here and there - each text string is treated as an object - and placing any graphics you might want to include. Like BoP, BMP, PCX and TIF files are supported. Text can be coloured - there are rather more colours available to the user in DLabel - for those with printers capable of handling it.

This is where my only major gripe comes in. There is no way you can print text rotated. For mailing labels, that's OK, but for disk labels, particularly 3.5", there is a need for a 90 degree and 180 degree rotation - this applies to labels for any other use as well, as a quick glance round the kitchen cupboards will show.

Gripe over. When it comes to a more sophisticated use, DLabel includes a database utility which allows you to specify fields from the a database to be printed at a given position. You can also include a counter, which increments in whatever intervals you specify, to serial number your labels. This is a very handy aspect of the program, since it brings in the prospect of it being used for other purposes.

You could, for instance, specify a label the size of a ticket, and print your own raffle tickets

(you can print duplicate labels, you see), or serialise invitation cards etc. DLabel has no idea what kind of paper or labels is in your printer, and takes your word for it that the size you specify is correct. You can do whatever you want!

Coming back to labels, DLabel is pre-loaded with standard Avery label sizes and sheet formats, and can also handle customised sizes, multiple labels across a sheet and so forth. The label print facility is very comprehensive, and as ever, print speed largely depends on the kit you're using.

A word of warning here. If you're going to print labels on a laser printer, please make sure you buy proper Laser Printer Labels. Ordinary ones have a heat sensitive stickum on the back, which is likely to run all over the insides of your printer, making for some heavy bills at the least, and, at the worst, ruining your printer. Listen to the words of experience, folks!

Summary

Neatly labelled disks can be a godsend, and utilities for producing such things did well a few years back. But if your need is for anything other than that, that is to say something a little more complex, then the functionality built into Designer Labels is probably powerful enough to do the trick for you. I have the feeling that those of you who would want to use the mailing label feature more than any other might find the built-in database a little feeble, but then the chances are that your main database will provide all the information you require for that kind of thing. And that's my only other niggle, really. I'd have loved to have seen a database import facility in the software. Perhaps in a later release.

As it is, Designer Labels carries a price tag of £49.95, which is not too bad, and is likely to be discounted closer to the £40 mark, at which price, it's a fair buy.

FAX BOX

- **Product:** Designer Labels
- **Price:** £49.95
- **Publisher:** Software Partners
- **Tel:** 0480 497622

Ease of Use 80

Overall Speed 80

Versatility 60

Verdict 65

Digital Daftness

I remember reading an article some time back that dealt with the phenomenon of down time - the non-productive time people spend at work. It was published shortly after I'd taken part in a time and motion study during which I'd spoken to the man with the clip-board and asked a few pertinent questions. It seems that all work and no play, even in the workplace, makes not only for a dull boy, but also one that is not as efficient. That's more than likely why the likes of Solitaire and Minesweeper get booted as often in offices around the country, and why Leisure Suit Larry was so popular with the City types a while back.

So the next of the packages to wander through rejoices in the title Fun Pack - it's obviously not a word processor, but it may just interest you a little.

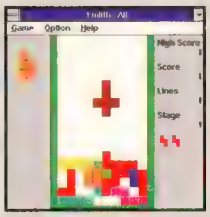
Within the box, apart from the seemingly obligatory chunk of pink polystyrene, lies a disk containing seven games' worth of code. We'll skip the installation - its like the others - and get straight onto the games.

Warhead

You've played it in the arcades, if you're over 25, that is, as Missile Command. You have two missile launchers, one at either end of the screen, and a string of cities 'twixt the two to defend. From the skies above, incoming missiles blaze their trail to your cities, and you must defend them by hitting them before they hit you. It's easy enough in the early stages, but gets devilishly hard as you get further on. There are a few additions to the original game which add a little spice to the proceedings, and it's quite possible to waste an hour before you realise it.

Hyperoid

It's Asteroids by another name, again with some additions (although I was never any good at this one, so maybe they've just chopped a few levels out).



Emlith

Tetris, but with a kick. At first, you're just playing a fast game of Tetris, and then you're suddenly confronted by a whole new set of liths (the proper name for the shapes). Some have holes in them, some have five tiles in them, some have six or more (the normal ones have usually got four or less). Another one that distracts you for ages.

Chomp

An old favourite - who hasn't played Pacman? This is as faithful a reproduction as I have seen, except that I remember the ghosts being eatable for a lot longer than they are here.

Jewel Thief

A new one on me, this one. You have to slide your cursor, which takes the form of a thief, over jewels randomly dotted on landscapes, while avoiding mobile meanies. I can get to level five, and then I get bored. This is the one for a five minute coffee break.

Block Breaker

Breakout anyone? I used to love breakout in the arcades, but this implementation is a little too slow for my tastes. It speeds up, yes, but level by level, rather than row by row. Still, it's one of the better breakout clones I've seen under Windows.

Blitzer

Last and definitely least, this is a cross between Defender and Lunar Lander, and it just doesn't work for me at all. The idea is to rescue six scientists imprisoned by aliens. Only you can save the earth, it says here. Fine, please do, cos I won't!

Summary

With the exception of Blitzer and Block Breaker, both of which I can do without, this is a decent little time-wasting package. OK, they're old-fashioned games revamped, but I'm an old-fashioned type of guy, and anyway, they're not so much old-fashioned as classics of their types. At £24.95 for the lot, the price isn't bad. There's even a boss key on one or two of the games - they minimise with a Program Manager description!

FAX BOX

- **Product:** FunPack
- **Price:** £24.95
- **Publisher:** Software Partners
- **Tel:** 0480 497622

Ease of Use 80

Overall Speed 80

Versatility 90

Verdict 80

Add-on-America Renoir NT Windows Accelerator

Any Graphical User Interface is likely to make heavy demands on a PC, and Windows is probably the heaviest of them all. For the most part, the PC's central processor is used to perform the calculations that end up as pretty pictures on your monitor, but there is a way to take some of the load off the CPU. Accelerated graphics cards, like the Renoir NT, perform some of the work in a graphics co-processor, but how well do they work, and what other advantages does the NT have over other VGA cards?

RENOIR NT
WINDOWS ACCELERATOR

Accelerated Windows displays make for faster working - the Renoir NT accelerated SVGA card reviewed by David Dorn

If you've read *Practical PC* from issue 1, you will know that there have been more graphics standards since 1981 than you can shake a stick at, culminating in today's VGA standard as the required minimum in a 'bog standard' machine. Beyond this we enter the realms of EVGA and SVGA, which, rather than provide 640 pixels wide by 480 pixels high in 16 colours, offer up to 1024x768 in up to 256 colours. There is, however, a further stage forward. We now have access to the Sierra RAMDAC on many graphics cards, which allows up to 32,000 colours on screen at any time, usually limited to a resolution of 800x600, and, with the right technology, can actually provide up to 65,536 colours on screen, albeit at the VGA resolution of 640x80.

One such card is the Renoir NT Windows Accelerator, distributed in this country by Program Solutions (UK) Ltd. The table shows the resolutions and colour support the card claims, a pretty high specification, capable of almost photographic quality in the 32k and 64k modes. Its installation is actually quite a breeze, since there is only one jumper on the body of the card itself, and a block of six DIP switches that faces out into the world once the card is installed. That means you can open up your PC and slot the card in without doing anything (the jumper has the sole purpose of allowing interrupt 2/9 to be used, which, currently is unlikely to need changing from the default).

Thankfully, the ring-bound manual supplied with the card is extremely thorough and covers every likely eventuality. The DIP switches are concerned mainly with monitor type - you set a block of three of the six switches to indicate the maximum resolution your monitor is capable of - and whether or not you will want to use the 32k colour modes (and you will, believe me)! Unlike the normal DIP switches, you don't need a small pointed object to change the settings as the switches themselves are large and easy to manoeuvre with a fingernail. Once that's done, it's off to the software set-up.

Software

The essence of any windows peripheral device is its set of drivers - if they're no good, you don't get anything like decent performance from the device. That said, I've had only one problem with the Renoir NT's driver set. As with any other graphics card, the drivers for the NT must be installed into Windows, which is done from the Windows Set-Up program. For Windows 3.0 users there is a separate set of drivers held on the drivers' disk (they actually work under 3.1 as well, but not as fast as the proper 3.1 drivers). All of the drivers gave very good results with the exception of the 64k drivers on an SVGA monitor. The 64k mode is not covered in the manual at all, unfortunately, and even after experimentation - loading the supplied VGA-BIOS program which

Resolutions supported under Windows 3.1

Pixels Wide	Pixels High	Colours
640	480	16
640	480	256
640	480	32k
640	480	65k
800	600	16
800	600	256
1024	768	16
1024	768	256
1280	960	16
1280	1040	16

Resolutions of 1024x768 and higher are available interlaced and non-interlaced

Add-on-America Renoir NT Windows Accelerator

improved things a little - it proved impossible to get correct colour values on screen.

That said, the 32k mode works perfectly, giving exceptional clarity and definition to images with enough colours to warrant its use. Which is fine for working with 24 bit images, for instance, but it is in the workaday 16 and 256 colour modes that the card is most likely to be used. The S3 graphics co-processor and its associated chipset is justly acknowledged to be more than useful for speeding up Windows graphics, offloading much of the graphics work from the CPU as it does, and the speed up with a variety of tasks under Windows and applications is very noticeable. Scrolling through documents is noticeably faster, but the main boost is noticed when moving big chunks around the screen - grabbing a window and shifting its results in a much faster update than you would see with a bog standard VGA card or even a Tseng Labs ET4000 chip set unit (the ET4000 chipset is probably the fastest of the non-accelerated chipsets).

Summary

To move from the card that is already in your machine to any accelerated card, you need to be sure that it is going to do what you want. If it's better speed, then the card must be faster. If it's more colours, then the new card must provide a bigger palette without loss of speed. If it's higher resolution, then the new card must offer a resolution that you will be happy with, without a loss of speed. With the exception of the 64k mode, the Renoir NT fulfils each of these conditions, and, frankly, I don't consider the bugs in the 64k mode to be a factor in the way I view the card. The truth of the matter is that it's difficult enough to see the difference between a 32k colour rendition of a picture and a 24 bit one (16 million colours), so it's all but impossible to see any difference between a 32k and a 64k colour image. I'm assured by Program Solutions that the problem is being looked into and that revised drivers will be made available as soon as possible. Even without that mode, this card is a winner. To put it in a nutshell, it's very fast, high res, and gives almost photographic images at 540x480. It's just a pity that 32k colours aren't available at 800x600 as well.

FAX BOX

- **Product:** Add-on-America Renoir NT Windows Accelerator
- **Price:** £279
- **Publisher:** Program Solutions
- **Tel:** 091 384 5401

Speed 99

Software 80

Ease of Use 80

Verdict 80

✓ Fast and versatile card that will speed up Windows

✗ Lack of 800x600 32k colour mode

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9347 **ANSI-Mate,** ansi batch file maker
• 10530 **Automenu,** escape the command line!
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9568 **Blank-It,** small & fast screen blanker
• 9503 **BMenu,** (UK) fast and powerful
12246 **CatDisk,** cataloguer/file searcher
9620 **Cedar,** directory colouriser
9659 **CUDM Disk Manager,** for labels/listings
9360 **DBS-kat,** diskette cataloguer (1)
10543 **Disk Commando,** 17 disk utils! (2)
10566 **Diskpool,** menu driven print spooler
9750 **Disk Duplicator,** any format, fast!
9685 **Diskpack,** packs files on disks
10322 **Disktree,** powerful Hd manager
12259 **Easy Format,** for controlled formatting
• 10582 **EasyMenu,** (UK) easy and fast!
• 9646 **Eclipse,** (UK) encrypter etc/shredder
• 10569 **Executive Director,** manu/file system (2)
9373 **FileBoss,** directory manager
• 9932 **PKLite,** superb .exe file compressor!
• 10400 **Flexi-back Plus,** for safe backups!
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9971 **Peruse,** powerful ASCII/Binary reader
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• 9438 **PKMENU,** shell for PKZip etc
• 10023 **PKZip,** PKUnzip utilities V1.10
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• 10517 **PowerMenu,** super menu creator
10062 **PPrint,** ASCII printing tool
10049 **Print Plus,** printing program plus!
• 10387 **Prof MasterKey,** powerful HD utility suite
10257 **Prowriter,** editor/WP and disk cataloguer!
10127 **Texear,** make .exe file from ASCII
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DESKTOP ACCESSORIES

12038 **Apcal Personal Calendar,** generator
11908 **BlaqueBook,** for addresses/tel nos
11921 **Business Calculator,** for the finance man
11921 **Calendar Mate,** schjeduler/tickler
12220 **Desk Commando,** menus + tools etc
11947 **Dr Memory,** for appointments or vents
• 12207 **Early Bird,** calendar/tickler etc
12077 **Friday,** TSR calendar/organiser
11973 **Hepcat,** TSR engineers calculator
11986 **Organise,** memos, events, appointments
11960 **FSCale,** pop-up calculator

TEXT EDITORS

3302 **Boxer,** full text editing system
3328 **Centiwrite,** single screen editor
3393 **DGEdit,** fast!
3419 **DTE5,** simple editor for source code
3432 **EE File,** edit unlimited files
3276 **EXText,** edit any sized file
3458 **FastEdit,** for small files in RAM
3481 **Ravitz,** fast & powerful editor
3497 **Simon,** pop-up editor
3549 **VDE,** small & powerful

COMMS

15353 **EasyDial,** directory/telephone dialler
15301 **Eazilink**
12064 **Namedropper,** directory dialler
• 15431 **Odyssey,** powerful UK offering
15314 **Telemate** (3)

ASTRONOMY/RADIO

14508 **ACE,** astronomical ephemeris (2)
14534 **Deep Space,** star maps, planets etc (2)
14495 **Mars 14,** UK astro utilities
13767 **Night sky,** star catalogue (4)
• 8801 **TD-Amateur Radio Log**

DATABASES (DBMS)

4589 **BIBL,** bibliographic database
4212 **Cardex Rotary File**
4225 **Data Pal,** list/label manager
4238 **DBF Manager**
• 4602 **DBF Mailist,** (UK) mailer etc
• 4615 **DBF papers,** (UK) bibliographic
• 4628 **DBF cases,** (UK) for legal cases
• 4641 **DBF Magindex,** (UK) papers, mags etc
4251 **Dlite TSR**
• 4264 **File Express (3)**
4277 **Filebase**
• 4654 **Ginger,** pressure group database
4290 **Freeform**
• 4654 **Ginger,** pressure group database
• 4303 **Information Please**
4576 **JEPRS,** bibliographic database system
12051 **Loose Ends,** random info manager
4316 **MemoMaster**
4329 **PC-Data Controller DBMS**
• 4381 **PC-File V5.0 (4)**
4258 **PickDB,** beginners database
4420 **PopDBF,** read DBase files, etc
4524 **QBase,** design multiple databases!
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4563 **Scraps,** super random info manager
4485 **SifDial,** personal address manager
12051 **Useful Notes,** pop-up info manager
4368 **Wampum**
4433 **Zephyr,** menu driven database (2)
• 4667 **Flatform,** (UK) new super database

SPREADSHEETS/STATS

• 1014 **As Easy As**
1027 **Expresscalc (2)**
1040 **Goalseeker**
• 1222 **Instalcalc,** easy to use
1209 **JOSS,** new & powerful spreadsheet/database (3)
1053 **KDCalc Calculator**
• 1066 **KwikStat**
1079 **Morsoft Calculator**
1092 **Onside**
• 1105 **PC-Calc+ (3)**
1118 **PC-Stat**
• 1131 **Pivot**
1186 **Promatheus,** calculator for the mathematician

HOBBIES/INTERESTS

8021 **BABY!** 12,000 names list
8944 **Bible Reader (4)**
9807 **Book of Changes,** I Ching
8606 **Book Librarian**
9178 **By The Numbers,** numerology
8047 **Calendar Keeper,** maker/database
8060 **CD-MSTR,** cd/tape indexer etc
8073 **Coinbase 2.3,** collectors database
8086 **Collector,** collectables database
8385 **Darkroom Assistant,** timer
8931 **Edna's Cookbook**
8918 **Football Forecaster**
8879 **Golf performance Analyser**
8138 **Household Register,** home inventory
8658 **HowZat,** cricket scorer
9126 **Mayan Calendar**
8567 **Meal Master,** recipe database
• 8801 **Noyes Chess Grader,** and scorer
8151 **Personal Nutritionist,** diet analyser
9139 **Personal Tarot**
8619 **Photo Equipment Database**
8177 **PostBase,** stamp collection manager
8840 **Punters Pal,** Uk racing form analysis
8190 **RAD3 Home Library,** database
8203 **Resume,** produce your own
8229 **SANDD Movie Guide,** film database (2)
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8528 **Software Susie,** software cataloguer
• 4654 **Ginger,** pressure group database
• 8892 **TD-Amateur Theatre,** database
• 8723 **TD-Bookminder,** UK Author
• 8736 **TD-Club Membership,** UK Author
• 8749 **TD-Coin Collector,** UK Author
• 8892 **TD-Amateur Theatre,** database
• 8762 **TD-Recipe Collector,** UK Author
• 8765 **TD-Record Collector,** UK Author
• 8788 **TD-Wine Maker,** UK Author
• 8892 **TD-Amateur Theatre,** database
8268 **The Better Diet Analyser**
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8853 **Vino:File,** for the wine cellar
• 8827 **TD-Video Collector,** (UK) database
8554 **TD-Home Contents,** UKdatabase
8905 **TD-Dog Club,** database

GENEALOGY

8034 **Brothers Keeper,** V5.0 latest version (4)
8125 **EZ-Tree,** genealogy/family history
8112 **East-Tree,** genealogy/family history
8710 **Family History,** a top title (2)
8647 **Family Ties,** for your family tree
8864 **Genie Genie,** proven UK package (2)
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• 8645 **Trees II,** UK latest & greatest
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5928 **Capital Gainz,** Portfolio manager
• 5980 **Cheque-It-Out**
6006 **EZ-Finance,** Personal Finance
6019 **Fastbucks,** Home Finance (2)
6045 **HBMS,** Home Budget Management System
6266 **Home Finance Manager,** UK Author
6058 **Loan Payment Calculator**
6071 **MoneyMizer,** Home Accounts (4)
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6084 **PC-BillMaster,** cheque book manager
6097 **PC-Budget V2.3,** Home Budget
6305 **Personal Portfolio Manager**
6110 **PMIS-Home DBMS**
6292 **Share Genius**
• 6279 **Trinity,** super UK home accounts
• 5941 **Home Finance Companion,** (UK) superb!

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1690 **20-20,** Large Type WP
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1729 **ASCII Browser**
1768 **Black Magic Hypertext (4)**
• 2717 **BREEZE,** powerful new WP!
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• 1820 **DTDearch,** text retriever
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2080 **Kwikwrite,** Executive WP
2093 **Max-Read,** writing style analyser
• 2106 **Mindreader,** WP & dictionary
2171 **NOVA WP**
2184 **Outline Plu**
• 2743 **PC-Type (4)**
• 2769 **PC Write Standard (4)**
2210 **PC-Browse**
2249 **PC-Index**
2236 **PC-Outline**
2275 **PC-Write (3)**
2288 **PC-Write Life (2)**
9971 **Peruse,** ASCII and binary file reader
7527 **PowerMerge,** UK mailmerge database
1729 **Ralph The Reader,** read any ASCII file
10452 **RAM,** resident Address Manager
2353 **Readability Plus,** style analyser
2366 **Readwrite,** TSR word counter
10088 **Read 1.5,** customisable file reader
2665 **Re-Member,** UK membership manager
2691 **Rubicon 2.2,** text based DTP (2)
2418 **Screenplay Formatter**
2548 **Thesaur Plus**
1755 **TV Script WP**
• 2730 **TLife,** text to .exe converter
2587 **WordMaster,** easy to use WP

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- 5252 **Cashflow Accounting**
- 5369 **Depreciation Calculator**
- 5408 **Finman** (small business accounts)
- • 5005 **Freeway Ledgermaster,** UK the best (4)
- • 5018 **Freeway Cashbook,** UK in familiar format (3)
- • 5031 **Freeway PAYE-master,** powerful/ flexible UK (3)
- • 5076 **GarageMaster,** UK garage accounting
- • 5642 **Invoicemaster,** UK feature packed!
- • 5019 **Noyes Accounts,** Uk with stock control
- • 5161 **Noyes Cashbook Analyser,** Uk 99 accounts
- • 5200 **Noyes Employee Hours Calculator**
- • 5135 **Noyes Home Accounts,** UK small business
- • 5148 **Noyes Home Cashbook,** UK small business
- • 5668 **Noyes Investment Ledger,** investment tracker
- • 5187 **Noyes Work in Progress,** track costs/sales
- • 5122 **Noyes Simple Accounts,** for first-time users
- • 5070 **Olive Accounts Controller,** UK power package (2)
- • 5733 **Olive Accounts Controller,** Junior
- • 5746 **Olive Accounts Comtroller,** Lite
- • 5559 **Olive Sales & Purchasing**
- • 5772 **Olive Quotes Controller**
- • 5057 **Page Financial Controller,** UK Proven Sage clone (2)
- • 5656 **Patient Billing System,** for UK private practice
- 6097 **PC-Budget,** home/small business accounts
- • 5083 **Petrol master,** petrol sales controller
- • 5681 **Professional Accounts,** (UK)
- • 5707 **Smart Accounts** for windows
- • 5694 **Sure Accounts,** (UK) easy to use

BUSINESS - GENERAL

- 7524 **AIM,** delegated tasks tracker
- 6617 **AppTRAK,** applicant tracker
- 6630 **AttendX,** attendance monitor
- 7267 **Automatic Network Manager**
- 6643 **Catalogue,** build an electronic cat
- 6656 **Contact Plus,** contact manager
- 6669 **CostBIz,** job cost program
- 6877 **Easy Project,** EZ project manager
- 6942 **Formgen V4.0,** forms designer/maker
- 6968 **Front Desk,** receptionist's aid
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- 6682 **Leadman,** personal contact organiser
- 6695 **Logit,** computer usage logger
- 7215 **Magazine,** for your own disk mag
- 7072 **Marketeer,** UK contacts/prospects etc (2)
- 6708 **Material N'Book,** small company inventory
- 6721 **MORFORM,** forms management system (2)
- 6734 **MT-Tracker,** client/project tracker (4)
- 6890 **Optima,** project management (1)
- 6747 **PayUp!** invoicing/customer DBMS
- 6740 **PC-Form,** forms manager, generator
- 6773 **PC-Mechanic,** Main management system
- 6786 **PC-Shift,** job shift scheduler
- 7007 **Personal Supervisor,** database control (1)
- 6799 **PowerQuote,** quotation/invoicing system
- • 7579 **Proquote,** (UK) estimates/quotations
- 6994 **Professional Scheduler**
- 7241 **Property Letting System,** UK (2)
- 7033 **Reservation Assistant,** resource manager
- 6825 **Sales-Biz,** sales tracker
- 7059 **Service Call Manager,** new (2)
- • 7592 **SuperStock,** (UK) inventory manager
- 6903 **TaskMan,** task & project tracker
- 6916 **TaskMaster,** project management
- 7150 **Task-Pro,** managers task tracker
- 6838 **TBS** Vehicle Maintenance system
- 6851 **TeleSales 4.0,** prospect tracker
- 6929 **Ticklex V5.8,** off scheduler/tracker (4)
- 7228 **Udecide,** simple decision aid tool
- 7111 **Work Queue,** task/project/staff scheduler
- • 6812 **ZIPO,** (UK) superb contact manager

EDUCATIONAL

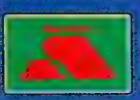
- 13819 **ABC Funkeys,** toddlers delight!
- 13312 **Amy's First Primer**
- 13832 **Andys Word Games**
- 13416 **Animated Maths,** for pre-schooler
- 13845 **Animated Memory,** tests memory skills
- 13325 **Calculus Tutor**
- 13328 **Capworld,** geography/trivia game
- 13351 **Chronos,** historical relationships
- • 14326 **Count & Add,** (UK) pre-school maths
- 13637 **DOSEA5,** DOS55 hypertext reference
- 13624 **DOSEA6,** 238 DOS switches, hypertext
- 13208 **DOSEA V2,** hypertext MS-DOS tutorials (5)
- 13585 **DOS Users Guide,** on-line aid-must have!
- 13377 **EcoMaster,** ecology simulation
- 13390 **Fictionary,** for developing vocabulary
- 13403 **Finger Maps,** superb drawing package
- 13858 **Funnels & Buckets**
- • 14001 **Hooray for Henrietta,** (new) VGA
- • 13988 **Henrietta's Book of Spells,** (new) VGA
- 14261 **Kal,** UK sums primer
- 13445 **Mathscastle,** maths fun game
- 13962 **Mathsplot**
- 13923 **Maths & Logic**
- 13936 **Micro World Database,** mapping (5)
- 13702 **Monkey Business,** Uk interactive story
- 13468 **Multiplication Primer**
- 14469 **Monarchs,** Uk monarchs database
- • 13234 **PC-AI,** tutorial/instruction composer
- 13247 **PC-FASTYPE,** typing tutorial
- 13221 **PC-Glossary,** computer terms (best seller)
- 13481 **PC-Musician,** PC music writer
- 13494 **Pianoman,** edit/compile tunes
- 13663 **PREP,** question authoring system
- 13572 **Q & A Study Aid,** testing/quiz compiler
- 13260 **QUic-Type,** typing game
- 14937 **Quizmaster,** create/play quizzes
- 14287 **Snakes,** (UK) sums for kids!
- 13567 **Spelling Bee,** vocabulary builder
- • 14313 **Spellbound,** (UK) spelling arcade game
- 14248 **Tell the Time,** (UK), time teacher
- 13286 **TestWriter,** test writing program
- 13364 **The Driller,** arithmetic drill
- 13299 **Touch Typing Tutor**
- 14274 **Trivia Quiz,** make your own
- 13273 **Tutorial Writer,** teachers toolkit
- 13650 **TypeTrek,** typing tutor/game
- 13598 **Weekly Speller,** task compiler/tutor
- 13559 **World29,** display any earth location!
- 13533 **World Name Game,** displays continents,etc
- • 14300 **Word Rescue,** Apogee word builder!
- 13546 **Word Squared,** word search squares

GRAPHICS/CAD

- 10608 **Alchemy,** image file format convtr
- 12311 **Another Program,** presentation system
- 10621 **BabyDraw,** kids drawing program
- 11193 **Circuit Designer** (2)
- • 10634 **Draft Choice,** CAD program
- 10829 **DanCad,** 3D l;ine drawing tool (3)
- 12285 **Desktop Paint,** drawing for DTP
- • 11206 **Easy Presentation Graphics** (3)
- 10647 **EEDraw,** electronics schematics
- 1660 **EZ-Screen,** image editor/display utility
- 12298 **FingerPaint,** painting program
- 10673 **FLODRAW,** flow chart drawing (2)
- 10920 **Fractinct,** fractal viewer (1)
- 10686 **GIPHEX,** gif/pcx convertor
- • 10699 **PC-DraftCAD,** fully featured CAD (3)
- 10712 **PC-GraphIT,** easy graphs
- 10725 **PC-Images,** slide show maker
- 10738 **PC-Keydraw,** graphics (4)
- 11180 **PC-Schematic,** circuit schematics
- 10751 **Postmaster,** poster maker
- 10764 **PrintPartner,** banners, signs, calendars,
- 10777 **Quick Titles,** large ASCII fonts
- 12324 **Show Partner,** super presentation system (2)
- 10816 **TheDraw,** ANSI graphics file creator
- 10790 **Turbopaint V1.5,** new version!
- 10803 **VUIMAGE,** gif/gif89/tiff viewer & more

GAMES/LEISURE

- • 15401 **Aliens Ate My Babysitter**
- • 14404 **Arctic Adventure**
- 15678 **Avaricus,** interactive text adventure
- 14391 **Battle for Atlantis**
- 14690 **B-Keys,** for key bashing toddlers!
- 14339 **Captain Comic**
- • 15691 **Castle of the Winds,** (new for windows)
- • 15171 **Caverns of Kroz**
- 14586 **Colossal Cave,** classic adventure game
- • 15054 **Commander Keen** - great arcade/graphics
- • 15067 **Commander Keen II** - rave reviews!
- • 15704 **Cosmo's Comic Adventures,** Apogee latest
- 14443 **Crossword Creator**
- 14456 **Crossword Solver**
- • 15080 **Crystal caves** - another great from Apogee
- • 14560 **Dark Ages,** arcade adventure
- • 15093 **Duke Nukem,** a best seller!
- 14365 **Ford Simulator II**
- 15028 **Global Warfare,** board simulation
- 15002 **Goal,** interactive soccer manager
- 15249 **GO!** exciting oriental board game
- 14352 **Grand Prix**
- • 15145 **Kingdom of Kroz II**
- • 15132 **Lost Adventures of Kroz**
- 15236 **Mah Longg V3.51**
- • 15106 **Monument of Mars**
- • 15119 **Paganitzu**
- • 14573 **Pharaohs Tomb**
- 14430 **Picture Puzzle**
- 15015 **Powerchess,** stimulating player!
- • 15158 **Return to Kroz**
- • 15717 **Secret Agent Man,** new from Apogee
- 15197 **Shooting Gallery**
- 14898 **Son of Stagefright**
- 15665 **SpellChick,** addictive arcade game
- • 15184 **Super Fly**
- • 15262 **Super ZZT**
- • 15730 **Wolfenstein 3D,** new smash from Apogee



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More than just a great price...

Why *Vale* from Evesham Micros?

QUALITY...

Some of the finest quality proven components from suppliers like NEC, Citizen, Intel, Seagate, Panasonic and Mitsubishi have been carefully selected to achieve a high performance product that is built up to a high quality, not down to the minimum cost.

OUR SECRET IS SERVICE...

In a recent poll the readers of *Computer Shopper* magazine voted *Evesham Micros* joint winner of a "Best Customer Service" award. Need we say more? Our customers have voted for us.

CUSTOMER CARE...

Don't forget that *Evesham Micros* has been looking after its customers for over nine years, has won several consumer awards and intends to win more. An example of our attention to detail is that we never charge credit cards until the goods are actually despatched.

READY TO RUN...

All our systems have been fully burned in and subjected to a rigorous test procedure. We even format the hard disk and load DOS and Windows so that you can get down to serious business without delay.

SELECTION...

Our face-to-face retail experience has taught us never forget that *the customer comes first*. That's why we offer such a vast range of hardware and software at competitive prices.

FAST DESPATCH & DELIVERY...

We endeavour to despatch all orders as quickly as possible. To this end, we try to maintain a buffer stock of popular configurations to be shipped immediately. Others we aim to despatch in days, not weeks. All systems are shipped by EXPRESS COURIER at no extra charge.*

FIRST CLASS WARRANTY...

Our guarantee is quite simple, but very friendly. All PC's include on-site maintenance,* 1 year for the *Prestige* range and 2 years for the *Premier* ranges. They also include lifetime warranty (or labour return to Evesham) and extendable maintenance at modest prices.

30 DAY MONEY BACK GUARANTEE...

We are so confident that you will be delighted with your Vale PC that should you, *for any reason at all*, find that it does not satisfy your needs, we will COLLECT it and refund your money in full.* *UK Mainland only

Which *Vale* PC suits your needs?

All *Vale* PCs are built to a standard that is causing concern to many of our competitors. At no stage is quality of performance or construction compromised for outright economy reasons. We could build and sell all models at a lower cost without any problem, but that would not be true to our objective. The *Vale* range has always been planned as "more than just a great price" and we therefore insist on using quality components from reputable suppliers, rather than those of lowest cost.

Prestige ...economy without compromise

Although the *Prestige* models have been designed to fill the role of our lowest priced systems, don't assume that corners have been cut. The specification is complete and the components fit well inside what's what at the computer industry. All models include a high speed 1MB SVGA card and Monitor, and most feature fast processor upgradeable motherboard. Our normal level of support and Warranty is, of course, standard.

Premier ...watch windows perform

The *Premier* range offers a level of specification, performance and flexibility that we feel sets new standards for the price. Who else offers a machine with a genuine *Windows* Accelerator (and this is the latest thing, recently given an award in PC User Magazine), a Caching Hard Disk Controller, upgradeable processor technology and two years On-site Maintenance at these sort of prices? If you want a computer to breeze through your *Windows* tasks then this is the one you need.

Premier Plus ...pure indulgence

Featuring a 15" DST monitor (the premium upon 2m more usable screen area than a 14" model. When coupled with the extra speed of the *Diamond Stealth VRAM*, more System RAM and more RAM for the Hard Disk Cache, our *Premier Plus* has taken the principle of the *Premier* and stretched it to offer a level of specification that is astounding. When you take into account the price at which we are offering this technology, there is absolutely no reason why

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Standard features

All *Vale* systems feature the following:

MS-DOS 5, MOUSE AND WINDOWS 3.1

MS-DOS 5
– and –
WINDOWS 3.1
installed
ready for use

With smooth, high quality MOUSE

Alternatively, we can supply DR-DOS 6 and Novell NetWare Lite 1.1 network software as a no-cost option

ON-SITE MAINTENANCE

All UK Mainland based systems are covered by on-site maintenance. This agreement is with **A.E.M.** who operate to BS5750 standard. In the unlikely event of a problem arising you can be sure it will be dealt with efficiently. *Prestige* systems are covered for 1 year, and all *Premier* systems for 2 years.

LIFETIME TECHNICAL SUPPORT

As an owner, you will be provided with access to an exclusive *VALE HOTLINE* support number, staffed by knowledgeable people with a full record of your system and customer history. Lines open 9am until 6pm

30 DAYS MONEY BACK GUARANTEE

We are so confident that you will be delighted with your Vale PC that should you, *for any reason at all*, find that it does not satisfy your needs, we will COLLECT it and refund your money in full

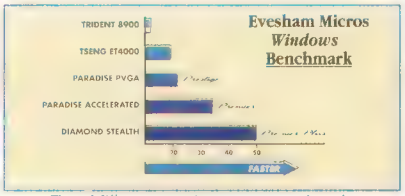
PROCESSOR UPGRADEABLE MOTHERBOARDS

Plan for the future!

The Motherboard we use on most of our models features the ultimate in ease and economy of upgrading. Quite simply the only part that needs changing is the CPU!! No expensive modules, no soldering, no complicated installation - just remove the old CPU, plug in the new one, change a few DIP switches, and that's it. You can choose from any 386DX or 486 model (yes any, right up to 486DX-50MHz or 486DX2-66MHz)

HIGH SPEED SVGA VIDEO CARDS

In line with our policy of using components of the best quality and performance, all *Vale* models are fitted with class leading video cards. The SVGA cards in our *Prestige* models include the latest *Paradise* chip, *Premier* models now include the new *Paradise Accelerator* chip, and the *Premier Plus* has it's top end *Diamond Stealth VRAM*. Unlike many suppliers, we have selected the model that we feel offers the best performance in it's category – not the lowest cost. The following Graph shows the relative performance running *Microsoft Excel for Windows* application in real time, so we are talking about genuine operational differences that really affect you – not technical hypertalk that doesn't add up in everyday use



The real differences are quite an eye opener and yes, the *Stealth VRAM* will run an application around 4 times faster than a *Trident* product, on the same computer!

CHOICE OF CASES

All systems are available in your choice of **Desktop, Slimline Desktop** or **Mini Tower** case. The **Big Tower** case is available at extra cost (see options)

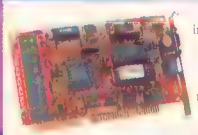
Prestige

MONITOR

This SUPERB quality dark screen, Low Emission 14" SVGA COLOUR monitor is non-interlaced in all modes except 1024x768 (which is really designed for use on large screen, 17" plus, monitors). The clarity and pin point precision of this monitor, manufactured for us by **Tatung**, really are at the top of its class. Display quality is visibly superior to most screens offered with competitive systems. It betters TUV and EN55022 emission standards. With its maximum 87Hz vertical refresh rate & dot pitch of 0.28mm, your eyes won't suffer

The *Vale Prestige*: a high specification PC with an upgradeable future, at a sensible price.

SVGA CARD



We use a Super VGA video card which incorporates the latest **Paradise WD90C30** chip and 1Mb video RAM. It offers performance advantages over *Tseng Labs* and *Trident* based products (particularly in bit-block transfer operations), resulting in superb *Windows* performance. A variety of screen drivers are provided

OTHER FEATURES

Your choice of either **Slimline, Desktop** or **Mini-Tower** case • **Big Tower** case available as an option • High density 3.5" 1.44Mb Floppy drive • 102-Key Enhanced Keyboard • Digital Display with Turbo/Reset Switches • 2 Serial, 1 Parallel & 1 Game port • 5x16-bit expansion slots free (1x16-bit & 1x8-bit expansion slots free with Slimline case • AMI PRO BIOS • MS-DOS Version 5 or Windows 3.1 • Mouse • 12 Months on-site maintenance

PRESTIGE Vale 386SX-33

- Genuine 33Mhz 386SX CPU
- 1Mb SVGA Video Card
- 2Mb RAM (max. 16Mb)
- 1 year On-Site Maintenance
- Includes MS-DOS 5, Windows 3.1 and Mouse

42MB	£699.00 +VAT = £821.33 INC
105MB	£799.00 +VAT = £938.83 INC
170MB	£849.00 +VAT = £997.58 INC
245MB	£999.00 +VAT = £1173.83 INC

PRESTIGE Vale 386DX-40 128K CACHE

- 40Mhz AMD 386DX CPU
- 128K Cache RAM on board
- 1Mb SVGA Video Card
- 4Mb RAM (max. 32Mb)
- 1 year On-Site Maintenance
- Includes MS-DOS 5, Windows 3.1 and Mouse
- Processor Upgradeable Motherboard

42MB	£ 819.00 +VAT = £962.33 INC
105MB	£ 919.00 +VAT = £1079.83 INC
170MB	£ 969.00 +VAT = £1138.58 INC
245MB	£1119.00 +VAT = £1314.83 INC

PRESTIGE Vale 486SX-25 128K CACHE

- 25Mhz Intel 486SX CPU
- 128K Cache RAM on board
- 1Mb SVGA Video Card
- 4Mb RAM (max. 32Mb)
- 1 year On-Site Maintenance
- Includes MS-DOS 5, Windows 3.1 and Mouse
- Processor Upgradeable Motherboard

42MB	£ 849.00 +VAT = £997.58 INC
105MB	£ 949.00 +VAT = £1115.08 INC
170MB	£ 999.00 +VAT = £1173.83 INC
245MB	£1149.00 +VAT = £1350.08 INC

PRESTIGE Vale 486DX-33 128K CACHE

- 33Mhz Intel 486DX CPU
- 128K Cache RAM on board
- 1Mb SVGA Video Card
- 4Mb RAM (max. 32Mb)
- 1 year On-Site Maintenance
- Includes MS-DOS 5, Windows 3.1 and Mouse
- Processor Upgradeable Motherboard

42MB	£1049.00 +VAT = £1232.58 INC
105MB	£1149.00 +VAT = £1350.08 INC
170MB	£1199.00 +VAT = £1408.83 INC
245MB	£1349.00 +VAT = £1585.08 INC

PRESTIGE Vale 486DX-50 256K CACHE

- 50Mhz Intel 486DX CPU
- 256K Cache RAM on board
- 1Mb SVGA Video Card
- 4Mb RAM (max. 32Mb)
- 1 year On-Site Maintenance
- Includes MS-DOS 5, Windows 3.1 and Mouse
- Processor Upgradeable Motherboard

42MB	£1219.00 +VAT = £1432.33 INC
105MB	£1319.00 +VAT = £1549.83 INC
170MB	£1369.00 +VAT = £1608.58 INC
245MB	£1519.00 +VAT = £1784.83 INC

OPTIONS

Big Tower Case instead of Slimline / Desktop / Mini Tower style case, add ..... £50.00 +VAT= £58.75	Non–interlaced 14" monitor (as *Premier* range, see next page) instead of Tatung monitor, add ..... £75.00 +VAT= £88.13	RAM Upgrade beyond 4Mb, per 2Mb add. ..... £51.06 +VAT= £60.00
420Mb Hard Drive, add to 245Mb price ..... £340.00 +VAT= £399.50	Prestige 386sx-33 RAM Upgrade to 4Mb ..... £51.06 +VAT= £60.00	Internal High Density 5.25" 1.2Mb Drive ..... £51.06 +VAT= £60.00
		Maths Co-Processor for 386sx-33 ..... £99.00 +VAT= £116.33

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Premier

Caching Hard Disk Controller, *Windows* Accelerator, 72Hz non-interlaced monitor and 2 years On-site maintenance; at these prices?

MONITOR

- Fully non-interlaced
- 72Hz refresh rate in all modes
- Flicker-Free Performance
- Low radiation (MPR II)

For the *Premier* range we have selected a superb quality 14" monitor which meets all the latest international standards. It's specification and performance are state of the art, with 0.28mm dot pitch and dark non-glare screen. On the safety side it complies with all the latest and toughest safety/radiation standards, including the severe TUV & Swedish MPR II. In complying with the latest VESA specification it offers full 72Hz flicker-free refresh rate in all modes up to and including 1024x768 non-interlaced, which means it is especially kind to the eyes. This really is a quality monitor to compliment a quality computer, not a budget priced make-weight to complete a system

WINDOWS ACCILERATOR SUPER VGA CARD

Featuring the latest **Paradise WD90C31 GUI Accelerator** chip, this card provides levels of *Windows* performance that typical *Trident* and *Tseng* based video cards fitted to most PC's are simply not capable of achieving. It is capable of 32,768 colours in 640x480 and 600x800 modes. This card will run our ***Windows* Benchmark test** (a real time *Windows* test running an application within *Microsoft Excel*, not meaningless lab figures) two to three times quicker than these conventional video cards. Drivers for a variety of other popular applications are provided

2 YEARS ON-SITE MAINTENANCE

A 2 year agreement with A.E.M. is standard The service can be further extended if desired.

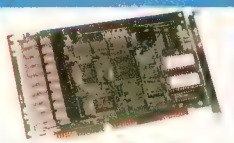
DUAL MEDIA FDD

3.5" and 5.25" Drives fitted as standard

OTHER FEATURES

Your choice of either **Slimline, Desktop** or **Mini-Tower** case • **Big Tower** case available as an option • High density 3.5" and 5.25" Floppy drives • 102-Key Enhanced Keyboard • Digital Display with Turbo/Reset Switches • 2 Serial, 1 Parallel & 1 Game port • 4x16 bit expansion slots free with Slimline • AMI PRO BIOS • MS-DOS Version 5 *and* Windows 3.1 • Mouse • 2 Years on-site maintenance

CACHING IDE HDD CONTROLLER



This hard disk controller, imported especially from the United States for use in our *Premier* and *Premier Plus* range, gives truly incredible access times and data transfer performance.

Manufactured by Promise Technology, intelligent operation is achieved by use of its own on-board 16-bit CPU and 512K read/write Cache memory (upgradeable to a maximum of 8.5Mb), cutting average access times to sub **0.3ms** and drastically increasing the Data Transfer rate.

Drive Type	*Normal Access time*	*Access time with Caching*	*Data transfer with Caching*
42Mb	17.8ms	< 0.3ms	1743.8 K/sec
105Mb	14.5ms	< 0.3ms	1711.1 K/sec
170Mb	16.0ms	< 0.3ms	1704.6 K/sec
245Mb	11.8ms	< 0.3ms	1750.9 K/sec
420Mb	14.3ms	< 0.3ms	1755.2 K/sec

Core also reports a performance index of 263

Figures produced using CORE test software on a Vale Premier 486DX-33 PC

KEYBOARD

A full 102 key extended keyboard with proper tactile switches. It is the same as our popular 'Enhancer' keyboard of which *PC Plus* were moved to comment "it is the best keyboard ever to have passed through our hands"

PREMIER 386SX-33

- Genuine 33Mhz 386SX CPU
- 4Mb (70ns) RAM, expandable to 16Mb
- Genuine *Windows* Accelerated SVGA video card
- Non-interlaced 14" SVGA Colour Monitor
- 512k Caching Hard Disk Controller
- 2 years On-Site Maintenance
- MS-DOS 5, Windows 3.1 and Microsoft compatible mouse

42MB	£949.00 +VAT = £1115.08 INC.
105MB	£1049.00 +VAT = £1232.58 INC.
170MB	£1099.00 +VAT = £1291.33 INC.
245MB	£1249.00 +VAT = £1467.58 INC.

PREMIER 386DX-40 128K CACHE

- 40Mhz AMD 386DX CPU
- 128K Cache RAM on board
- 4Mb (70ns) RAM, (max.32Mb)
- Accelerated SVGA video card
- Non-interlaced 14" SVGA Colour Monitor
- 512k Caching Hard Disk Controller
- 2 years On-Site Maintenance
- MS-DOS 5, Windows 3.1 and mouse
- Processor Upgradeable Motherboard
- *Landmark V2.0* speed of 62Mhz

42MB	£1019.00 +VAT = £1197.33 INC.
105MB	£1119.00 +VAT = £1314.83 INC.
170MB	£1169.00 +VAT = £1373.58 INC.
245MB	£1319.00 +VAT = £1549.83 INC.

PREMIER 486SX-25 256K CACHE

- 25Mhz Intel 486SX CPU
- 256K Cache RAM on board
- 4Mb (70ns) RAM, (max. 32Mb)
- Accelerated SVGA video card
- Non-interlaced 14" SVGA Colour Monitor
- 512k Caching Hard Disk Controller
- 2 years On-Site Maintenance
- MS-DOS 5, Windows 3.1 and mouse
- Processor Upgradeable Motherboard
- *Landmark V2.0* speed of 84Mhz

42MB	£1069.00 +VAT = £1256.08 INC.
105MB	£1169.00 +VAT = £1373.58 INC.
170MB	£1219.00 +VAT = £1432.33 INC.
245MB	£1369.00 +VAT = £1608.58 INC.

PREMIER 486DX-33 256K CACHE

- 33Mhz Intel 486DX CPU
- 256K Cache RAM on board
- 4Mb (70ns) RAM, (max. 32Mb)
- Accelerated SVGA video card
- Non-interlaced 14" SVGA Colour Monitor
- 512k Caching Hard Disk Controller
- 2 years On-Site Maintenance
- MS-DOS 5, Windows 3.1 and mouse
- Processor Upgradeable Motherboard
- *Landmark V2.0* speed of 110Mhz

42MB	£1269.00 +VAT = £1491.08 INC.
105MB	£1369.00 +VAT = £1608.58 INC.
170MB	£1419.00 +VAT = £1667.33 INC.
245MB	£1569.00 +VAT = £1843.58 INC.

PREMIER 486DX-50 256K CACHE

- 50Mhz Intel 486DX CPU
- 8K Primary Cache in CPU
- 256K Cache RAM on board
- 4Mb (60ns) RAM, (max. 32Mb)
- Accelerated SVGA video card
- Non-interlaced 14" SVGA Colour Monitor
- 512k Caching Hard Disk Controller
- 2 years On-Site Maintenance
- MS-DOS 5, Windows 3.1 and mouse
- Processor Upgradeable Motherboard
- *Landmark V2.0* speed of 169Mhz

105MB	£1519.00 +VAT = £1784.83 INC.
170MB	£1569.00 +VAT = £1843.58 INC.
245MB	£1719.00 +VAT = £2019.83 INC.
420MB	£2059.00 +VAT = £2419.33 INC.

PREMIER 486DX2-66 256K CACHE

- 66Mhz Intel 486DX-2 CPU
- 8K Primary Cache in CPU
- 256K Cache RAM on board
- 4Mb (60ns) RAM, (max. 32Mb)
- Accelerated SVGA video card
- Non-interlaced 14" SVGA Colour Monitor
- 512k Caching Hard Disk Controller
- 2 years On-Site Maintenance
- MS-DOS 5, Windows 3.1 and mouse
- Processor Upgradeable Motherboard
- *Landmark V2.0* speed of 222Mhz

105MB	£1619.00 +VAT = £1902.33 INC.
170MB	£1669.00 +VAT = £1961.08 INC.
245MB	£1819.00 +VAT = £2137.33 INC.
420MB	£2159.00 +VAT = £2536.83 INC.

PREMIER OPTIONS

Big Tower Case instead of Slimline / Desktop / Mini Tower style case, add	£50.00 +VAT= £58.75
420Mb Hard Drive, add to 245Mb price	£340.00 +VAT= £399.50
15" *Premier Plus* monitor (see next page) instead of 14", add	£100.00 +VAT= £117.50
17" Sampo AlphaScan SVGA Colour Monitor, add.	£349.00 +VAT= £410.08
17" Tatung SVGA Colour Monitor(1280x1024 max.resolution non-interlaced), add	£549.00 +VAT= £645.08
20" Tatung SVGA Low Emission Colour Monitor (1280x1024 non-interlaced), add	£849.00 +VAT= £997.58
Internal CD-ROM (including Controller Card)	£329.00 +VAT= £386.58
RAM Upgrade, per 2Mb add	£51.06 +VAT= £60.00
3RD Year O S M., 386sx33	£119.00+VAT= £139.83
386sx40	£139.00+VAT= £163.33
486sx25	£149.00+VAT= £175.08
486dx Models	£169.00+VAT= £198.58

Vale PC Accessories

COLORADO TAPE STREAMERS

- 120Mb and 250Mb Capacity
- Much faster than floppy disk backups
- Mounts neatly inside your PC, with front panel access for tape cartridge
- Industry standard QIC-40 recording format

Regular backups are essential to ensure the safety of your data, and the **Colorado Jumbo** is the best value tape drive available. It is more economical than using multiple floppy disks, as well as being faster and far more convenient. Typically, for a 40Mb backup, the Jumbo 120 takes less than 20 minutes and the Jumbo 250 under 10 minutes. Powerful file compression software is also supplied, which on average compresses data about 2 to 1.

Special low price

Jumbo 120Mb
£149.00+VAT (=£175.08)

Jumbo 250Mb
£199.00+VAT (=£233.83)

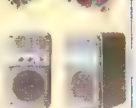
VALE MULTIMEDIA

Explore the huge potential of interactive graphics and sound with our special Multimedia package, available with *any* VALE *Prestige, Premier* or *Premier Plus* model for only (£379.00+VAT) £445.33.

SOUNDBLASTER PRO
Digital stereo 11-voice synthesizer • CD-ROM interface • Analog joystick port • Built-in Stereo Power Amplifier

CD-ROM DRIVE
Performance optimised internal drive • Connects directly to *Soundblaster Pro* card

CD-ROM SOFTWARE
Features *Battlechess* and *Microsoft Bookshelf* (includes Dictionary, Thesaurus, Quotations and Atlas / Encyclopaedia).



ZY-FI STEREO SPEAKERS
Built-in stereo power amplifier • Separate L/R Volume controls

VALE FAMILY PACK

Turn your new computer into an entertainment, education & productivity centre with our Family Pack, available exclusively with *any* VALE model at only (£100.00+VAT) £117.50.
(total cost if purchased individually £222.98)

TOOLWORKS OFFICE MANAGER
Popular productivity Software that is extremely easy to use! Features **Spellchecking Wordprocessor, Database** and **Spreadsheet.**

DIGITAL SOUND SYSTEM
Features a fully AdLib compatible sound card, plus a pair of ZY-FI amplified stereo speakers for dynamic, high quality sound.

MAVIS BEACON TYPING TUTOR
Attain professional typing skills with the world's best software typing tutor!

LEISURE SOFTWARE
Two of the best ever PC games, **MONKEY ISLAND 2** and **WING COMMANDER** are both included, featuring fantastic graphics and sound!

***PLUS!* Analogue Games Joystick.**

Evesham Micros • CALL US NOW FOR IMMEDIATE SERVICE ON (0386) 765500 • Evesham Micros

Premier Plus

Our *Premier Plus* range offers all the advantages of the *Premier* range, with the following enhancements :

PREMIER PLUS 486SX-25 256K CACHE

- 25Mhz Intel 486SX CPU
- 256K Cache RAM on board
- *Diamond Stealth VRAM* SVGA Video Card with non-interlaced 15" Monitor
- 8Mb high speed (70ns) RAM
- 2.5Mb Caching Hard Disk Controller
- 2 years On-Site Maintenance
- MS-DOS 5, Windows 3.1 and mouse
- Processor Upgradeable Motherboard

105MB	£1449.00 +VAT = £1702.58 INC.
170MB	£1499.00 +VAT = £1761.33 INC.
245MB	£1649.00 +VAT = £1937.58 INC.
420MB	£1989.00 +VAT = £2337.08 INC.

PREMIER PLUS 486DX-33 256K CACHE

- 33Mhz Intel 486DX CPU
- 256K Cache RAM on board
- *Diamond Stealth VRAM* SVGA Video Card with non-interlaced 15" Monitor
- 8Mb high speed (70ns) RAM
- 2.5Mb Caching Hard Disk Controller
- 2 years On-Site Maintenance
- MS-DOS 5, Windows 3.1 and mouse
- Processor Upgradeable Motherboard

105MB	£1649.00 +VAT = £1937.58 INC.
170MB	£1699.00 +VAT = £1996.33 INC.
245MB	£1849.00 +VAT = £2172.58 INC.
420MB	£2189.00 +VAT = £2572.08 INC.

PREMIER PLUS 486DX-50 256K CACHE

- 50Mhz Intel 486DX CPU
- 8K Primary Cache in CPU
- 256K Cache RAM on board
- *Diamond Stealth VRAM* SVGA Video Card with non-interlaced 15" Monitor
- 8Mb high speed (60ns) RAM
- 2.5Mb Caching Hard Disk Controller
- 2 years On-Site Maintenance
- MS-DOS 5, Windows 3.1 and mouse
- Processor Upgradeable Motherboard

105MB	£1799.00 +VAT = £2113.83 INC.
170MB	£1849.00 +VAT = £2172.58 INC.
245MB	£1999.00 +VAT = £2348.83 INC.
420MB	£2339.00 +VAT = £2748.33 INC.

PREMIER PLUS 486DX2-66 256K CACHE

- 66Mhz Intel 486DX CPU
- 8K Primary Cache in CPU
- 256K Cache RAM on board
- *Diamond Stealth VRAM* SVGA Video Card with non-interlaced 15" Monitor
- 8Mb high speed (60ns) RAM
- 2.5Mb Caching Hard Disk Controller
- 2 years On-Site Maintenance
- MS-DOS 5, Windows 3.1 and mouse
- Processor Upgradeable Motherboard

105MB	£1899.00 +VAT = £2231.33 INC
170MB	£1949.00 +VAT = £2290.08 INC.
245MB	£2099.00 +VAT = £2466.33 INC.
420MB	£2439.00 +VAT = £2865.83 INC.

PREMIER PLUS OPTIONS

17" AlphaScan Colour Monitor (1024x768 non-int.) instead of 15", add	£249.00 +VAT	£292.58
17" Tatung Col.monitor (1280x1024 non-int.) instead of 15", add	£449.00 +VAT	£527.58
20" Tatung Col.monitor (1280x1024 non-int.) instead of 15", add	£749.00 +VAT	£880.08
16Mb RAM option instead of standard 8Mb RAM installation, add	£199.00 +VAT	£233.83
3RD Year On Site Maintenance	£199.00 +VAT	£233.83

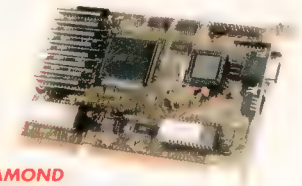
FOR OTHER OPTIONS PLEASE REFER TO THE PREMIER SECTION

WINDOWS ACCELERATOR SVGA VIDEO CARD

PC MAGAZINE EDITOR'S CHOICE

PC WORLD BEST BUY

The March issue of PC Magazine *conducted a very competitive group test that included* **Orchid Fahrenheit** *and* **ATI** *adapters. Awarded Editor's Choice,* **Diamond Stealth VRAM** *was commented on as offering "...leading edge performance under Windows ... well written drivers run on sturdy hardware ... you won't find a better price/performance bargain than the Diamond..."*



DIAMOND STEALTH VRAM

Based on the S3 Accelerator chip and using the Sierra RAMDAC, the **Diamond Stealth VRAM** Video Card recently won the coveted 'Editors Choice' accolade in the American *PC Magazine*. Up to 25 times faster than Super VGA, the card has many of its own specially developed, enhanced S3 software drivers included for superlative acceleration and compatibility particularly in *Windows 3* and *AutoCAD*

The resultant speed of screen manipulation in graphics intensive applications is *simply stunning*. Many SVGA resolutions are supported, which include 1280 x 1024 with 16 colours, and 640 x 480 fully non-interlaced with 32,768 colours.

It conforms to VESA monitor and graphics standards with a 72Hz refresh rate, and is compatible with standard variable frequency or VGA fixed frequency Analog compatible monitors.

Latest software includes *Windows 3.1* drivers and ***WINRIX DCS***, professional 24-bit Colour Paint software for *Windows*.

15" MONITOR

For the *Premier Plus* range we have selected a 15" version of the monitor which accompanies the *Premier* range, with it s superb flicker-free performance and low radiation standard (see previous page). A 15" tube typically gives about 20% more viewable screen area, making the use of the 1024x768 mode entirely practical. We consider that given the design brief for the *Premier Plus* of building a high end Windows/CAD workstation that a monitor of this size and quality is a minimum requirement. However, should funds be adequate, we would be delighted to supply a 17" or 20" model as an option

8MB HIGH SPEED RAM

Premier Plus models include 8Mb high speed RAM. 16Mb RAM available as an option

2.5MB CACHING HDD CONTROLLER

Hard Disk performance is improved even further with 2.5Mb RAM fitted to *Premier Plus* models.

Photograph shows the *Vale Premier Plus* with Mini Tower case and 15" Monitor

Twinhead SlimNote

Powerful 486 Notebook

featuring BUILT-IN Trackball and advanced power management.

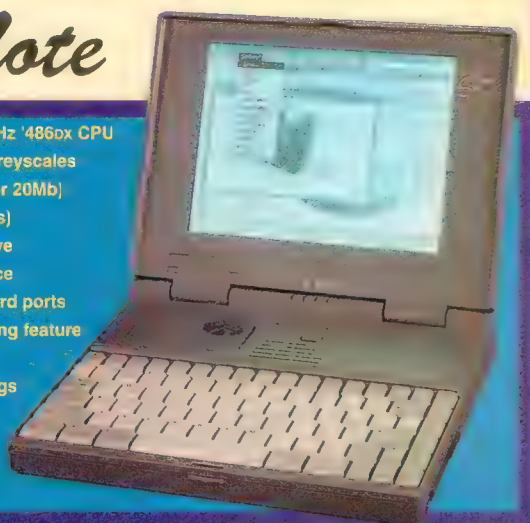
At 386 prices!

486SX 25MHz	
80MB	£1549.00 +VAT = £1820.08 INC.
120MB	£1749.00 +VAT = £2055.08 INC.

486DX 33MHz	
80MB	£1899.00 +VAT = £2231.33 INC.
120MB	£2099.00 +VAT = £2466.33 INC.

SlimNote RAM expansion to 8Mb £200.00+VAT = £235.00

- Choice of 25MHz '486SX or 33MHz '486DX CPU
- 10" LCD VGA display with 64 Greyscales
- 4Mb RAM (expandable to 8Mb or 20Mb)
- 80Mb or 120Mb Hard Disk (19ms)
- Internal 3.5" 1.44Mb Floppy Drive
- Built-in trackball for convenience
- Serial, Parallel, Video & Keyboard ports
- Suspend & Resume power saving feature
- Over 2 hours battery life
- 280 x 220 x 42mm, approx. 2.5kgs
- Includes AC Mains adaptor, Ni–Cad battery, 'TH Link' file transfer kit, MS-DOS 5, Windows 3.1 and mouse



NEW LATE NIGHT SHOWROOM OPENING UNTIL 7PM, WEDNESDAY TO FRIDAY • Evesham Micros • CALL US NOW ON (0386) 765500 • Evesham Micros

PC ACCESSORIES

NEW! COLOUR HANDY SCANNER

CONVENIENT COLOUR SCANNING HAS NOW COME OF AGE...

Providing powerful colour scanning tools, this package enables high quality colour images to be generated for use in professional graphics presentations.

PACKAGE INCLUDES:

- HAND-HELD COLOUR SCANNER & INTERFACE CARD
- 'SCANKIT' Colour Scanning / Image Edit *Windows* software
- 'PICTURE PUBLISHER LE' top professional *Windows* based Image Scanning and Photograph re-touching software
- 'PERCEIVE PERSONAL' powerful OCR *Windows* software, giving simple, efficient operation with highly effective results

COLOUR SCANNER FEATURES:

- *Super Color Gray* mode for 262,144 colours per dot at up to 200dpi
- *Color Gray* mode for 12-bit file format colour image generation
- *Mono Gray* mode with true 64 greyscales at up to 400dpi
- *Dithered Color* mode with 3 selectable patterns between 100-400dpi
- *Line-art* mode for monochrome pictures at up to 400dpi

Evesham Micros FREE SCAN SAMPLE SERVICE

Simply send us a photograph, blank disk (high density prefered) and S.A.E. and we will return a scanned version of the photo to you on disk. Please state which scanner you require us to use (colour, greyscale or halftone).

ONLY (£299.00+VAT=) £351.33

Requires '286 or higher, Windows 3 or higher, 1Mb RAM or greater, Mouse, Hard Drive and EGA graphics or higher.

NEW! FAX/MODEM UNITS

AT LAST! SENSIBLY PRICED FAX/MODEMS AVAILABLE AS POCKET UNIT OR EXPANSION CARD

FAX SPECIFICATION

- Sends and Receives Group 3 faxes at up to 9600 bps, to any Fax machine or Fax board
- Compatible to CCITT Group 3, V21 Channel 2, V29 and V27ter modes
- Professional Fax operations easily achieved under *Windows 3.x* or DOS with software supplied

FREE! *WINFAX* and *DOSFAX* software

- Transmits laser-sharp 200dpi outgoing faxes
- With WINFAX for *Windows 3.x*, sending faxes is as easy as selecting PRINT from any application !
- WINFAX receives faxes in background, which are stored automatically and can be viewed at any time.
- Phonebook entry and administration facilities
- DOSFAX allows you to hotkey out of DOS for quick and easy transmissions of faxes, or capture faxes as a background task

PORTABLE UNIT FEATURES

- Tiny sized, truly portable and high quality unit
- Compact, stylish, attractive, hard-wearing case
- Powered by AC adapter or a battery (both supplied), with 3 hours typical battery operation
- Neatly concealed connections behind panel
- LED indicators for battery status, Power On / DTR active and Data Receive/Transmit activity
- MNP10 allows reliable Cellular communications

MODEM SPECIFICATION

- Capable of speeds greater than 9600bps
- Features MNP2-4, V42 and MNP10 error correction, for absolute data integrity
- V42bis & MNP5 for up to 4x data compression
- Compatible to CCITT V21, V22 & V22bis
- Equipped with auto-dial/auto-answer and DTE auto-baud select (300-19200 bps)
- Full speed buffering with selectable flow control
- Non-volatile storage of 20 telephone numbers

B.A.B.T. APPROVED

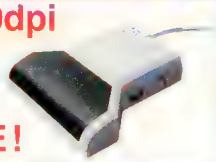
APPROVED for connection to telecommunication systems specified in the instructions for use subject to the conditions set out in them.
NS/2900/3/N/603...
REN=1

ONLY £199.00+VAT= £233.83 inc.VAT & Delivery

State INTERNAL or EXTERNAL when ordering

PC MONOCHROME HANDY SCANNERS

QUALITY 400dpi SCANNING - AT THE RIGHT PRICE!



Our monochrome Handy Scanners have all the right features, including O.C.R. and extensive graphics editing facilities.

- Superb quality, genuine 400dpi Scanning resolution
- Full 105mm wide scanning head with illuminated scan window
- Four selectable scanning resolutions between 100 and 400dpi
- Variable brightness control • Built-in scan speed indicator
- Choice of either 64-Halftone or True 256-Greyscale models

These hand-held units produce truly superb quality scans. Full software even includes high speed, fully trainable OCR utility which converts scanned text images into text files, saving hours of retyping!

Works with any PC (including Amstrad PC1512 or PC1640) with 640K RAM. Hard Drive and Mouse highly recommended.

64 HALFTONE LEVEL VERSION (DOS SOFTWARE)

- Three 8x8 halftone patterns supported as well as line-art
- **PC Paintbrush Plus** versatile image scanning / editing software provided to directly scan any image & integrate additional text + graphics with 14 drawing tools Allows adding of colour to black and white images
- **Scankit** enhanced scanner utility allows scanning, image merging, pixel editing, image printing Saves using most popular file formats including CUT, .IMG, .PCX, .MSP, .TIF & PIX

(£85.10+VAT=) Only £99.99

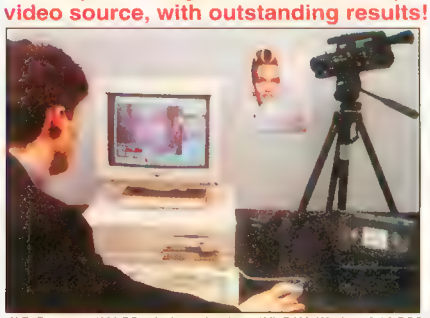
TRUE 256 GREYSCALE VERSION (WINDOWS ONLY)

- Now features **800 dpi resolution**
- With **true 256 greyscales capability**, this scanner captures photorealistic quality monochrome scans, with actual shades and shadows
- Includes **Picture Publisher LE** Top professional *Windows* based image scanning and photograph re-touching software

ONLY (£127.65+VAT=) £149.99

VIDI-PC Video Digitisers

VIDI-PC and MEDIA-PRO Plus allow you to capture images from almost any video source, with outstanding results!



N.B. Requires a '286 PC or higher with at least 1Mb RAM, *Windows 3.1* & DOS installed, and one unoccupied expansion slot available

VIDI-PC • 12

High specification, low cost solution to quality video digitising

(£152.34+VAT=) £179.00

- 12-Bit Capture system
- Up to 4096 colours
- Takes less than one second to capture one video picture frame
- 16 Greyscale images can be grabbed from moving video
- PAL/NTSC Composite/S-Video inputs and R.G.B. output
- Free 'PHOTOFINISH' powerful image edit software supplied
- Load/Save 24-bit RGB TIFF,BMP

VIDI-PC • 24

Get truly photorealistic results, with up to 16.7 million colours!

(£211.91+VAT=) £249.00

- 24-Bit Capture system
- Up to 16.7 million colours
- Takes less than one second to capture one full colour picture
- 256 Greyscale images can be grabbed from moving video
- PAL/NTSC Composite/S-Video inputs with on-screen controls
- Free 'PHOTOFINISH' powerful image edit software supplied
- Load/Save 24-bit RGB TIFF,BMP

MEDIA-PRO Plus

View, Freeze, Capture and Edit real-time running video on your PC in full 24-bit colour!

(£254.47+VAT=) £299.00

- Perfect for multimedia and image capture applications
- Full motion TV/Video & Sound on your Windows 3.1 screen!
- Up to 16.7 million colours
- Takes less than one second to capture one full colour picture
- 256 Greyscale images can be grabbed from moving video
- PAL/NTSC Composite/S-Video inputs and R.G.B. output
- Free 'PHOTOFINISH' software, plus 2 Speakers & Headphones

VIDI-Chrome PC colour splitting software for B&W camera users	(£42.51+VAT=) £ 49.95
VIDI-RGB PC colour splitting hardware for colour camera users	(£59.53+VAT=) £ 69.95

NEW LATE NIGHT SHOWROOM OPENING UNTIL 7PM, WEDNESDAY TO FRIDAY • Evesham Micros

ANALOG EDGE Joystick
by Suncom Technologies

Suncom's analogue joysticks always set new standards in quality and performance. The *Edge* represents terrific value, incorporating *Injected Resistor Technology*, resulting in a product with unmatched simplicity and breakdown resistance. Features two-way switchable fire buttons, and Aircraft-style grip, with game optimised ergonomics. Complete with 'Gameport 2' dual input gameboard halfcard.

(£25.52+VAT=) £29.99
INCLUDING CONTROLLER CARD

Joystick or Controller card supplied separately for (£15.31+VAT=) £17.99

ANALOG XTRA Joystick

Featuring the same *Injected Resistor Technology* that gives the *Edge* uncommon durability and capability, the *Xtra* is possibly the most advanced flight sim joystick on the market! With variable autofire, throttle control, 4 switchable fire buttons and Aircraft-style grip. Accuracy and flexibility like nothing you've experienced before! Supplied with 'Gameport 2+' variable speed dual input gameboard halfcard.

(£34.03+VAT=) £39.99
INCLUDING CONTROLLER CARD

Joystick or Controller card supplied separately for (£21.27+VAT=) £24.99

NEW! FLIGHTSTICK

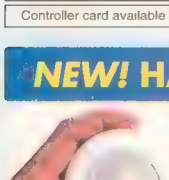
THE NEW FLIGHTSTICK HAS TO BE THE ULTIMATE, TOP QUALITY JOYSTICK FOR COMPUTER PILOTS!

Test fly a Flightstick with your favourite simulator and you will know the meaning of *control*. Whether you're a novice or experienced combat pilot, flying skills will be improved and enemy kill rate will increase. Excellent construction - looks and feels like the real thing! Includes throttle control and 7ft long connection cable.

(£34.03+VAT=) £39.99

Controller card available for *Flightstick* for only (£21.27+VAT=) £24.99

NEW! HANDY MOUSE



TOTAL ONE-HANDED CURSOR CONTROL – PERFECT FOR ALL YOUR PORTABLE PC APPLICATIONS!

Slim, comfortable and easy to use, this new specially designed controller is suitable for both left and right handed users! Features a clever 'Ball Button' which gives one-finger cursor control, clicking *and* click'n'drag, all in one control. Feather-touch button control (variable resolution 80-500dpi). Stylish in design, with a glossy finish. Microsoft serial compatible - driver software supplied.

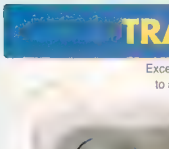
Only (£34.03+VAT=) £39.99

TRACKBALL

Excellent high performance trackball, directly compatible to any PC, operating via the serial port. Super-smooth, accurate and versatile - perfect for WIMP environment and graphics intensive operations, as well as games! With its featured locking drag button and line hold facilities, accurate total one-handed control is a doddle. Top quality construction and opto-mechanical design, delivering high speed and accuracy every time. Full Microsoft compatible driver software supplied.

Only (£34.03+VAT=) £39.99

TRUEMOUSE



WE GUARANTEE that this is the smoothest, most responsive and accurate mouse you can buy for the PC. Excellent performance, amazing low price! 3-Button Serial (9-way & 25-way), PS/2 and 2-button Amstrad PC compatible versions available - please state which version is required when ordering.

(£19.57 +VAT=) £22.99 State SERIAL, PS/2 or AMSTRAD PC VERSION when ordering

COMPLETE PC SOUND PACKAGE

WITH LATEST VERSION 2 OF **SOUNDBLASTER**

Digital Sound Output • 11 Voice FM Synthesizer (fully ADLIB compatible) • Digital Sampling capabilities • On-board Analog Joystick I/O port • On-board Stereo Power Amplifier with external stereo speaker connections & volume control • Software includes FM organ, Text to Speech & more • Fully ADLIB compatible – *WORKS WITH LOTS OF GAMES!*

PACK ALSO FEATURES *'MONKEY ISLAND 2'*, STEREO AMPLIFIED SPEAKERS & ANALOGUE JOYSTICK!

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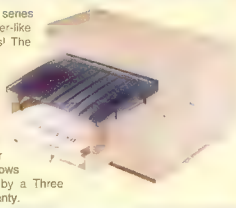

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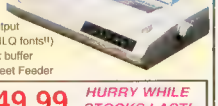

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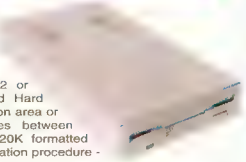

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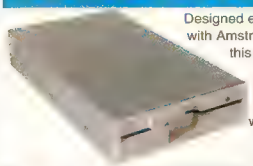

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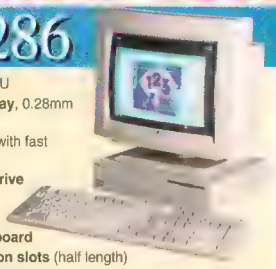
PC5286



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February Shareware

Once again Transend Services and Practical PC bring the very best of Shareware products direct to your home or office. In this section you will find many programs, from Home and Hobbies to professional DTP packages, that you are able to try at only £2.50per disc. Simply fill in the order form at the end of this section and you could be using your discs the next day.

PRACTICAL SHAREWARE

The best of Shareware brought to you by Transend

Many of our shareware readers are now ordering discs every month from this section of the magazine. They are guaranteed excellent service with prompt delivery and latest versions of the software they wish to try.

Transend source good quality shareware from all over the world, we then review the best of them for these pages every month. You are able to order copies of these programs, for which you pay £2.50 per disc duplication costs, to enable you to test the full package before you buy. You are then guaranteed that if you register and receive the full packaged software it will work on your machine and with your printer. This is the Try Before You Buy concept of shareware and, in our view, is the only way to buy software if you want to avoid disappointments.

For those of you new to computing we have a number of tutorials that will take you through the basics of your computer to those teaching you a new programming language. For anybody in business the two DTP packages we have, NeoPaint and Envision Publisher, are the most professional packages in the shareware market today and at less than £100 a pair they are the biggest bargain this year.

Now read the U.K's leading collection of shareware for this month and remember, if you order by phone you can be using the programs tomorrow.

BUSINESS

Includes financial planning, project management, forms designers and employee record systems

CENTRAL HEATING CALCULATOR

Order Code: 1100 Total Disks: 1

A very practical piece of software. The package provides you with a means to calculate the number of radiators required to heat a building. It covers areas such as heat loss and therefore allows you to measure the effectiveness of various insulation methods. A comprehensive survey is carried out on screen as to the make up of the building, what the floors are made of and the dimensions of each room. The questions are concise and well worded so as to avoid endless lists of fact gathering queries. After a manual survey of a property the user could simply spend 10 -15 minutes entering the data and selecting the required radiators. The program supports all graphics' standards and does not require a hard disk. These latter two points mean one could use a small portable or notebook on site to gather facts and make initial outline recommendations. A good tool for architects or engineers.

VEHICLES

Order Code: 10790 Total Disks: 1

This program was designed and programmed to keep track of your vehicles' expenses. You can store each vehicle by its registration and then call up details as and when needed. It is really for a business with more than three vehicles to look after and keep track of.

COMMUNICATIONS

Terminal emulations, bulletin board systems and electronic mail programs all feature here.

EAZILINK

Order Code: 8310 Total Disks: 1

As a shareware library with monthly deadlines for our advertorial copy we need a reliable Communications package. Unfortunately a custom program we used developed a bug and two hours before our copy deadline we were unable to send the data via our modem. Within 30 minutes of receiving EaziLink we were logged on and uploading our copy. This highlights how easy EaziLink actually is to get up and running with the minimum of fuss. The program also comes with a host mode for any budding 'Sysops' who wish to try their hand at running a BBS.

GSZ'S ZMODEM

Order Code: 10640 Total Disks: 1

This is another top quality external protocol program for use with your chosen terminal software. It has two levels of crash recovery and flexible control of selective file transfers. You can customise it to your own preferences and it comes with an excellent on-disk manual.

February Shareware

DESKTOP ORGANIZERS

Calendars, organizers, alarm clocks and calculators appear in this section.

IDEA TREE

Order Code: 1400 **Total Disks: 1**

The concept of random text entry is one that computers find difficult to handle. People think in the most illogical way (unless you are of Vulcan decent) therefore, computers are often of little help when trying to organise thoughts. Idea Tree tries to get around the problem by using a technique called outlining. You start by entering a basic 'global' idea and break it down into smaller and smaller steps. For example, think of a house, break it down into floors and then into rooms. You have started with a high level concept and broken it down into component parts. Idea Tree helps you organise your thoughts using this process. Outliners have developed nicely over recent years and this program is sure to keep up with the trends as they develop. A fabulous package which helps organise those chaotic lists of ideas or prioritised jobs. Requires Hard Disc.

TIME LORD

Order Code: 3010 **Total Disks: 2**

A complete suite of accessories, Timelord is a very user friendly personal organizer, best described as a computerised File-o-Fax. It has the ability to dial phone numbers and print labels. Accessories include a diary, an appointments schedule, calculator, calender, 'to do list' and a reminder facility. Any tasks not completed by the due date on the `to do list' can be automatically carried over to the reminders list, a facility I found to be very useful. You may input an unlimited number of addresses which may be called up by name, town, any of two user-defined fields or simply scroll through the list in "Rolodex" fashion. Timelord also has a document database where you can index all your text files wherever they are on your hard disk giving you the ability to search and browse with the built in report viewer. I found Timelord to be extremely useful in controlling my time and I am now awaiting my registered version. Registered users will receive an update to the latest version and a utilities pack which includes data import/export, file rebuilding and reports generator. Requires Hard Disc

ABC SONG
PRESS ANY KEY TO EXIT
A B C D E F G
H I J K L M N
O P Q R S T U
V W X Y Z
Press SPACE BAR to repeat the song or press any other key to exit.

Code 10830, Talking Teacher

TALKING TEACHER

Order Code: 10830 ***Total Disks: 2***

This is the Soundblaster version of TALKING TEACHER and it is excellent. It will help your child learn to talk, read, write and spell. It will also help teach your child computer interaction at an early age. You can record your own voice for use within the program and change the spelling lists to match your child's weekly list from school. This is the highest quality educational package I have seen in a long time and is well worth registering. Requires Hard Disc & EGA.

DATABASES

Database development programs, report writers and dBase III compatible programs are listed here

RAPID ADDRESS

Order Code: 3050 **Total Disks: 1**

In ten years of programming, I now have many companies utilising database applications for names and addresses, every one of them would have benefited by including Rapid Address within the database. The program allows you to input the postcode of an address and will automatically call up the Town, County and dialling code of that address. (You can also insert user defined fields as in most databases.) This saves 50% of the work when inputting into a database and allows for less mistakes

WINDBASE

Order Code: 10660 **Total Disks: 1**

This application for 286 processors or better with Windows 3.1 is designed to simplify data collection. You can customise your data entry forms and at the same time create the database. You can index on a number of fields to enable faster retrieval. You can then print in your customised design, Multiple databases are supported

EDUCATION

Education for young and old. Learn maths, spelling, a new language or even about computers!

BILLBOARD

Order Code: 15000 **Total Disks: 1**

This excellent colouring book program lets your children draw a picture, then colour it in and save it out. Then you can hit a key and hey presto the picture is all jumbled up ready for your child to piece it back together again. It includes animation sequences, 16 colours, ready drawn pictures, load, save, jigsaw and many other features. This program is better than a great number of commercial drawing packages for children. My two children loved to draw and colour with it. They would then take it in turns to piece together each others jigsaw - guaranteed to keep them happy for years. Requires VGA.

IQ CHALLENGE

Order Code: 5290 **Total Disks: 1**

This excellent quiz-type program, for up to four players, is well worth ordering for those evenings when you have a few friends round for a couple of drinks. It keeps track of the scores for each player and the percentages which can be viewed or printed. It covers six

topics including the popular Sport & Entertainment, Science & Computing, Geography and others. The menu makes it very easy to use and the saving of high scores gives everybody something to aim for

PC TUTOR

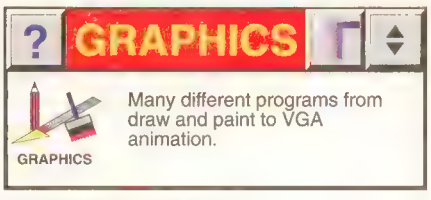
Order Code: 1000 **Total Disks: 1**

The PC TUTOR is an essential program for all readers who wish to explore the potential of their computers further. It runs well on all graphics adapter types and has no special hardware requirements. PC TUTOR takes you step-by-step through the intricacies of the IBM PC and MS-DOS. By completing each section you will learn about the keyboard and all the special keys such as INS and DEL. You may then proceed through exercises in computer terminology which explain jargon words. The final exercises introduce you to MS-DOS, its basic commands and what it is supposed to do for you on a day-to-day basis. After the basic level you will cover more advanced commands which enable you to manipulate information and make good use of storage such as floppy disks. Finally, batch files are covered in detail explaining why we use these compact command files and what each batch sub-command does. All in all, a very well composed program which is simple to use and educational

THE VOCABULATOR

Order Code: 10820 **Total Disks: 1**

This program gives you the means of learning a core of around 500 foreign words very quickly. You can add new words or phrases and change translations to a form which suits your way of remembering things. It is actually very good and gives you a choice of nine languages including French, German, Afrikaans, Italian, Portuguese, Slovak, Spanish, Tswana and Zulu. Requires hard disc



DESKTOP PAINT

Order Code: 10590 **Total Disks: 1**

This is a simple easy to use 16 colour paint package that needs a mouse to run. It does not have all the features of a full paint package but this means that it will not take up megabytes of hard disc space. It does have most of the standard features and may be worth ordering. Requires VGA

ICON 3000

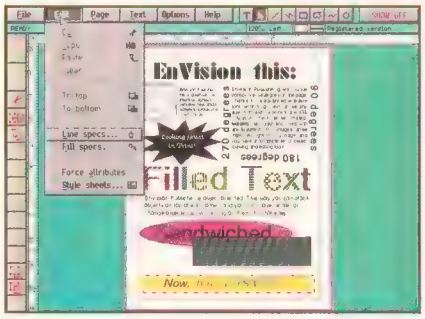
Order Code: 10720 **Total Disks: 1**

Every Windows Icon you will ever need, over 3,000 icons to choose from with no duplications. These icons are ideal for use with shareware programs such as Icon Show and Icon Tools.

ENVISION PUBLISHER

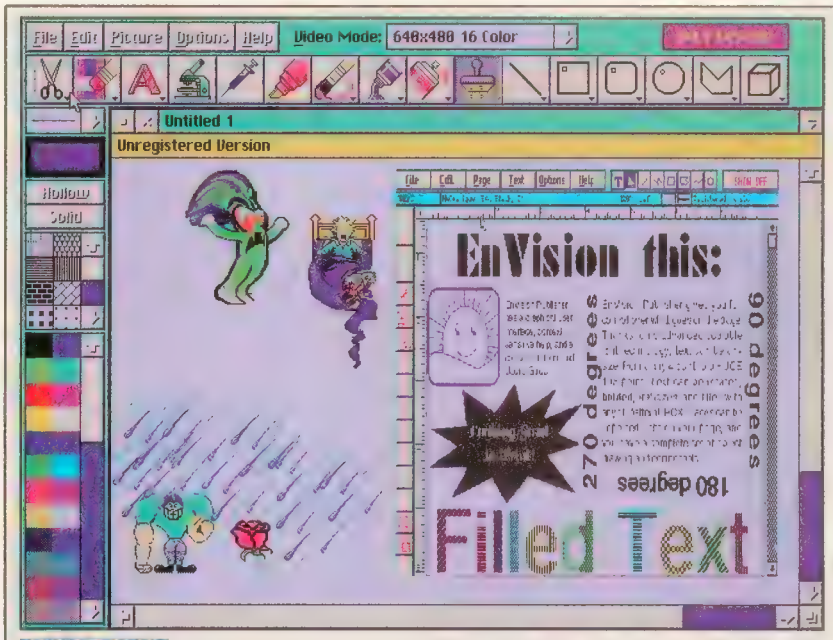
Order Code: 10470 ***Total Disks: 2***

Envision Publisher is a full-featured desktop publishing program with advanced WYSIWYG (What You See Is What You Get) page layout and composition features that let you design documents in an interactive visual environment. Text can be scaled from 4 points to 108 points without loss of quality and can



Code 10460, Neopaint

be rotated, bolded, kerned or filled with any pattern. It includes a powerful set of object drawing tools including PCX import and scaling. It also has full clipboard capability. This program is the best of its kind on the market for page making facilities, it is far better than a number of 'Commercial' page-making programs that are popular with users who only have a dot-matrix printer. It will print to laser or dot matrix and with a better quality than our £350 package does. If you



Code 10470, Envision Publisher

NEOPAINT

Order Code: 10460 **Total Disks: 2**

At Last! A shareware paint package that will take care of all your professional needs. It is so good that we now use it for all our drawing and image manipulation for the artwork you see in this section of the magazine. It has a colour stamp facility that allows you to create your own images to be copied onto an existing screen without wiping out the background. It has more facilities than the package we used to use and costs a fraction of the price. It includes all the standard tools, of which most of them work in Zoom mode. It can invert, flip, rotate, scale, stretch, smudge and anything else you might want it to do. It includes PCX and GIF in its file formats, works with Hercules and above in 2, 16 or 256 colours and can print to laser or dot matrix. You can convert colour images to 256 grey scales and work with multiple images but best of all, it doesn't need Windows to run which means it is easy to install and use. This is the best package to become available on Shareware in a long time. There are already loads more Fonts available with more becoming available every week. Requires Hard Disc

order this program along with NEOPAINT, our professional paint package (Code: 10460) you would have all your DTP problems solved for less than £100.00 for the registered versions.Requires hard disc

NEOPAINT FONTS (1)

Order Code: 10480 **Total Disks: 1**

Approximately 20 extra fonts for the excellent Neopaint paint package to enable you to produce even more varied DTP work

NEOPAINT FONTS (2)

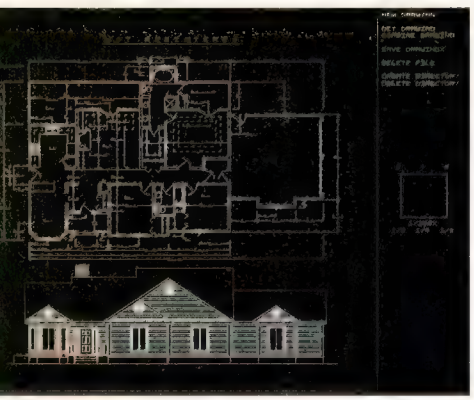
Order Code: 10490 **Total Disks: 1**

Approximately 20 extra fonts for the excellent Neopaint paint package to enable you to produce even more varied DTP work

PCX DUMP

Order Code: 10760 **Total Disks: 1**

This is a basic screen capture program that lets you capture any part of a screen into a PCX file. You would run this program first, choosing the hot keys you wish to awaken it with. You would then run your latest game and at the right moment press the hot keys, it will then save the screen out to a PCX file for you to load into your paint package.Requires EGA



Code 10670, Procadd

PROCADD

Order Code: 10670 **Total Disks: 2**

This simple to use comprehensive CAD package for DOS gives you all the tools you need to create complex drawings. It has all the standard tools seen in any other CAD package with one great exception, the registered version uses the CorelDraw 3.0 interface. This means that drawings can be created with the necessary detail unavailable in CorelDraw, you can then import your drawing into CorelDraw and add any enhancements such as 3D effects and fonts. Requires hard disc & CGA.

? HOME & HOBBIES

HOME & HOBBIES

Something for all the family. Recipe programs, cheque book management, Ham Radio and record collections.

ASTROLOGY AND BIORHYTHMS

Order Code: 1230 **Total Disks: 1**

The areas of astrology and biorhythms are of interest to people from across the world. These two programs are an introduction to these schools of thought as implemented on the IBM PC. The astrology program provides detailed information as to the position of the planets on a given date, information on what the likely personality and interests of a person born on a given date will be and finally information on rising signs. The biorhythms program is simple and easy to use for those who know the subject but are not computer boffins. The documentation for these programs provides a fascinating history of the subject. Programs such as these are now being used around the country to provide computerised horoscope and printed biorhythm charts. Watch out Russel Grant!

BANNERIFIC

Order Code: 10750 **Total Disks: 1**

This is a very simple program that lets you type in a line of text and details of print size and orientation, it will then produce a banner on your dot matrix printer using the line of text. Very good for those one-off Happy Birthday messages when you have forgotten to get a card.

COLORSCAN

Order Code: 10610 **Total Disks: 1**

A unique idea indeed, scan in colour images with your black and white scanner! You need, among other things, three coloured cellophane filters, a Scanner guide, pencils, clear tape etc. You then scan your image using each of the filters in turn saving out the images. The program then brings the images together to make one colour image. Even though I suspect the author works for Blue Peter the idea is a quite good one and computer hobbyists will enjoy using this package. The manual is very well done and would be of interest to anyone dabbling in graphics.Requires VGA.

FLOAT CARTOON MAKER

Order Code: 10810 **Total Disks: 1**

This little mouse-driven program will allow you to create backdrops and actors to make your own cartoon production. Roger Rabbit it is not! It uses text-based graphics and the demo production should have less detail to be more impressive. It is however an interesting program that takes you through placing the actors to shooting frames. You even get to decide when to say "Cut! That's a Rap". Requires hard disc & CGA.

KWS KNITWEAR DESIGN

Order Code: 7470 **Total Disks: 1**

KWS Knitwear Design is an asset for many home computer users who are knitting clothes by hand or machine. You are able to input new and popular patterns to be stored at a later date for use again and again. You input the data only once, you can then print out any number of patterns for different sizes of garment in inches or centimetres. Now Dad can have an identical jumper to his son without having to roll it up at the bottom or trying to fit two arms into three sleeves. KWS will also tell you how much wool you need to buy so you no longer need to knit many scarfs to use up all your spare wool. This is a very professional program written by an experienced home knitter using machine and by hand so you know it will contain all the necessary features.

? LEISURE

LEISURE

Arcade action, adventures and puzzle games to while away the dark evenings.

CAPTURE THE FLAG

Order Code: 9040 **Total Disks: 1**

For those not impressed by arcade shoot 'em ups comes this excellent version of the popular outdoor sport. A challenging game of strategy portrayed in such detailed graphics as to leave me speechless. You must capture your opponents flag (the computer can be your opponent) before he gets yours. You can also capture the opponents team players. The animation is silky smooth and flicker free as your players run around the vast countryside scenario. In real life the playing are would be the size of a small village and every inch must be searched if you are to capture the flag. The

February Shareware

Code 10540, Brix

BRIX

Order Code: 10540 ***Total Disks: 1***

Any game that tests my logical mind is always a winner with me, and this excellent game of Brix is top of my list. It is an arcade puzzler game that tests your ability to think fast and move quickly. The idea is to pick up individual blocks, move them around and drop them next to matching blocks to make them disappear. When all the blocks have gone you move on to the next level, sound easy? Well the first few levels are just to get you used to the game, but, the other 100 levels will test you to your limit with the addition of elevators, boiling acid, lasers, lava acid and anti-grav. This game has excellent graphics and sound blaster support but does need a 286 or better to run. Requires hard disc & VGA.

on-line help is once again beyond belief, appearing automatically when you are most likely to need it. Reminders on how to use the controls, how to seek out the opponents players and beat them up, and how to move across the terrain are all supplied. These can quickly be removed so they don't get in the way during the game of an experienced player. Get your friends round to see this one today. The commercial quality makes it a market leader! Requires VGA.

COMMANDER KEEN IN KEEN DREAMS

Order Code: 10000 **Total Disks: 1**

Commander Keen has the largest fan club of all available shareware games. Transend has scoured the world from Norway to the USA in the search for more Keen Games. We found this latest version from Gamers Edge in America, along with many other titles form ID Software, now known as the lost collection of ID Software. Your hero is back and needs help to rescue the captured children being held by the Vicious Vegetables. We fell about laughing at the jogging carrots, head-butting parsnips and other whacky characters as we jumped, climbed and ran about the many levels. A well aimed flower bomb soon put paid to the battling Vegies, but only for a few seconds giving you time to pass, save the children and leave quickly. Shin up the fireman's poles to heights never reached before but be careful that the potato doesn't bash your head in at the top. Game players every where are now queuing up for a copy of this excellent graphical game with breath-taking colours. Requires EGA

DEATH WATCH

Order Code: 9000 **Total Disks: 1**

Based in the city of Locklaven, this VGA animated adventure places you in control of a party of four mystical characters. Developed in the style of Eye of the Beholder, this game is easily the best role-playing adventure available on shareware. A mouse makes the game more playable but is not essential. The icons displayed on the screen can be used to move your characters around the world or invoke actions such as casting a spell. The quality of graphics in Death Watch is breath-taking and adds greatly to the atmosphere of fantasy and adventure. Suitable for all ages, this is sure to be one of the most popular adventure games this month. Requires VGA.

FORD SIMULATOR III

Order Code: 5670 **Total Disks: 4**

The best Ford simulator yet, in fact I will go so far as to say that they could not bring another one out to top this one. The VGA graphics on the opening screens and of the cars themselves are amazing. You are able to look at all the Ford 1992 series of cars currently available in America. You can get all the details of what's under the bonnet, how much they cost and then take one for a test drive on this full VGA driving simulator. Each car behaves differently so you never get tired of using the program. The disk includes over 2.5 MegaBytes of files which is understandable when you see the gloss paint on the bodies of the cars, you can even change the colour of each model. Well worth adding to anybody's library. Due to the size of files this program is only available on 3.5" discs. Requires hard disk and VGA.

Code 10650, Kung Fu Louis

KUNG FU LOUIE

Order Code: 10650 **Total Disks: 3**

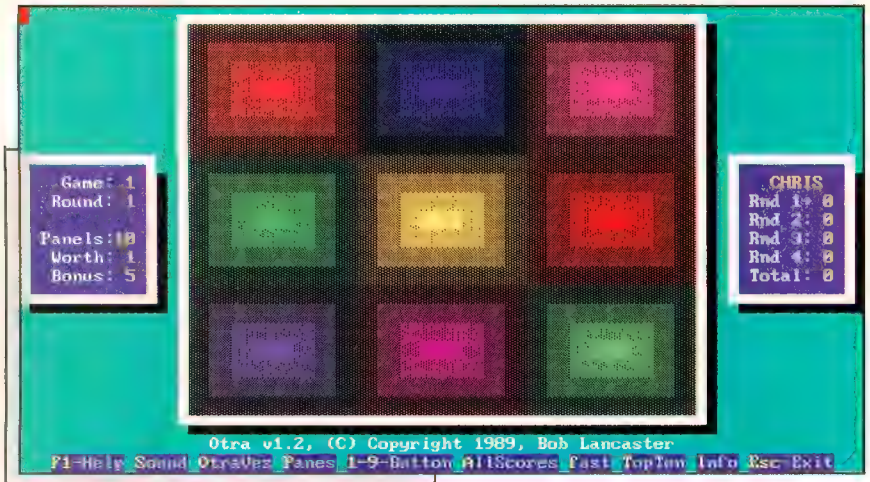
Punch, Kick and fight your way through the first four levels of Kung Fu Louie to face the ultimate challenger "Martial Art" (Art being short for Arthur in this case). After defeating ARThur ten years ago he has now decided that you, Kung Fu Louie, should be shown a little humiliation unless of course you have what it takes be Master. This program was written by Raphael Salgado, who is himself a first-degree black belt, so he could use a Karate program that he enjoyed and was realistic. Well worth ordering, especially for its Soundblaster support. Requires EGA.

MARIO VGA

Order Code: 5250 **Total Disks: 1**

This is an excellent adaptation of the Mario Brothers game. The game play is smooth and the graphics are as good as any other platforms type game. The task is to collect coins and to tip up the tortoises and spiders that crawl out of the pipes along the platforms. By jumping up and bumping your head under the platform the tortoises are walking on, you can tip them onto their backs making them unable to move. Then all you have to do is get up there to knock them off. Beware! If you take too long they remove their shell, change colour and are then even harder to keep up with. This game is well worth adding to your leisure library. Requires VGA.

February Shareware



Code 10520, Otra

OTRA

Order Code: 10620 Total Disks: 1

This game is based on the Simon game that was a hit with kids all in the U.K. a number of years ago. You start with a group of nine panels of different colours and musical notes. At the start one of these panels will flash and play a note and you must then repeat the sequence. The computer will then repeat the sequence and add a note and so on. Where this game wins over the hand held version is that points are awarded and a top-ten table is held.

SCRAMBLE

Order Code: 2000 Total Disks: 1

An excellent computer version of the popular board game Scrabble. You have the option of 1-4 players, or if you prefer you can play against the computer. The documentation on the disk comes with full instructions and installation and loading details. It even deals with possible technical problems. The EGA graphics are very well done and make the game every bit as enjoyable as the board game. The disk comes with the necessary programs to decode the 33,000 word dictionary, to allow you to edit, and to re-encode it for use with Scramble. This enabled me to put in all the words I consider legal and thus go on to win the game. Using a mouse is optional but it does make the game more playable. Requires EGA.

SECRET AGENT

Order Code: 3390 Total Disks: 1

Another apogee winner. As Secret Agent 006 and a half, your mission is to parachute down to a high-security island and get the plans of the ultimate satellite laser weapon. To do this you must bypass dozens of traps and overcome hundreds of multi-talented guards and robots and use all your skill and logic to find the blueprints. I found it very difficult for the first few hours, but after watching the robots and using my skill at cheating I was able to watch somebody else to find out how to complete each screen, of which there are lots. Secret Agent is an excellent scrolling adventure game that should keep you playing it for weeks. Requires hard disk and EGA.

SHERLOCK

Order Code: 9360 Total Disks: 1

This is a must for everybody with a home computer, and the one at work if your boss is away. It is a very addictive game of logic, deduction, and lots of lucky guesses, when you first play. The author has thought of everything, you can even play in tournament mode to pit your wits against family and friends. To play you must deduce where 36 different images appear on the grid by studying a series of clues. It will take you one game to get used to the types of clues, using hint as often as you like, but then you have another 65,534 games to play before you have exhausted the possibilities. You can configure the colours you play with and even edit the tiles to give you other pictures to look at. You do need a mouse to run this program- but it's well worth buying one just to play this game. Requires EGA.

STARFIRE

Order Code: 10770 Total Disks: 1

An evil alien race has sent a huge number of invasion ships towards Earth, carrying weapons capable of destroying entire planets! This shoot em' up game has very good graphics and supports Soundblaster. It does, however, need a 286, or better, to run. I found it very difficult to get past the first fleet but when I did, the game became more enjoyable especially as the 256 colour graphics match most games out today. Requires VGA.

SHAREWARE TOP TEN

Here is the new top ten based on sales from Practical Shareware and the current Transend catalogue

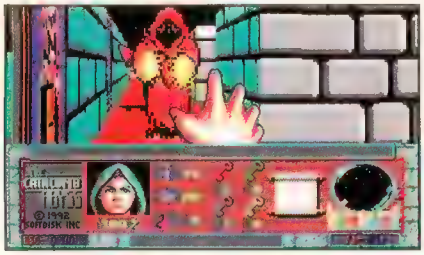
Pos	Title	Order Code	No. Disks
▶	THE CATACOMB ABYSS	20000	2
	First disk to sell 1000+ copies in the first month!		
▲	KEEN DREAMS	10000	1
	Most hilarious adventure to date for our hero		
▲	WOLFENSTEIN EXTRAS	5150	1
	Transend's own collection of add-ons		
▼	PC TUTOR	1000	1
	Popular teach-yourself PC disk		
▼	MARIO VGA	5250	1
	Excellent arcade action all the way		
▼	HOME FINANCE COMPANION	5000	1
	U.K's best personal finance manager		
▶	WORD RESCUE	3000	1
	Learning is fun with Apogee education		
▲	COMMANDER KEEN 4	2040	1
	VGA & CGA fun with the popular youngster		
▲	FORD SIMULATOR III	5670	4
	Excellent view and drive of Ford's cars		
▲	DEATH WATCH	1710	1
	Best selling Role playing adventure		

WALL OF FAME

TEGL MONOPOLY

Order Code: 1780 **Total Disks: 1**

This TEGL product does great justice to the game of Monopoly. Good use of animated VGA graphics and pop-up windows with property information make this a must for fans of the board game. The American property titles do not detract from the game which can be played by up to 15 players at the same time. A game that can be played by all the family is quite rare, so this is sure to be popular among readers. The pull down menus make the game easy to play and the smooth animation helps keep the interest of younger players. Requires VGA.



Code 20000, The Catacomb Abyss

THE CATACOMB ABYSS

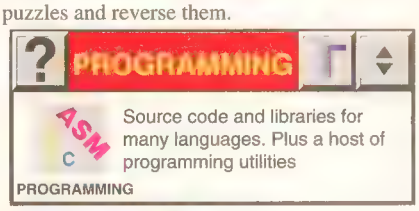
Order Code: 20000 **Total Disks: 2**

EGA Graphics owners cursed when they saw that Wolfenstein 3D required a minimum of VGA to display its 256 colours. Wolfenstein was nearly Transend's best selling game of '92 Nearly! All must now step aside and make way for The Catacomb Abyss from America's Gamers Edge team. Our librarian passed me the disk for review, I ran it and nervously waited for the title page. Impatient as ever I skipped the help and went straight for the action! Caught unawares, I was dragged helplessly into the nightmare world of The Catacombs. My Soundblaster convinced me that there were footsteps coming from behind me. I wheeled around to see a 3D abhorrent Zombie attempting to maul me. Quickly I hurled two magical fireballs, both hit the creature of the night square in the chest reducing him to a pile of smouldering bones. I darted for cover, blasting a hole in a wall with another fireball. Beyond the rubble stood a chest of treasure with more healing potions and firepower beneath its lid. I heard a screech, and in a bat appeared in the distance - another fireball took care of it The Catacomb Abyss is more than a game...IT'S REAL! Requires EGA.

WORD CONVERT

Order Code: 10800 **Total Disks: 1**

Word Convert solves the kind of puzzles seen in many magazine competitions where a given word is converted into another by altering one letter at a time. It will work for words of any length and comes with a 64,000 word file that it uses to solve the problem. It has an options menu that allows you to block words, create puzzles and reverse them.



BASIC TUTOR

Order Code: 2130 **Total Disks: 1**

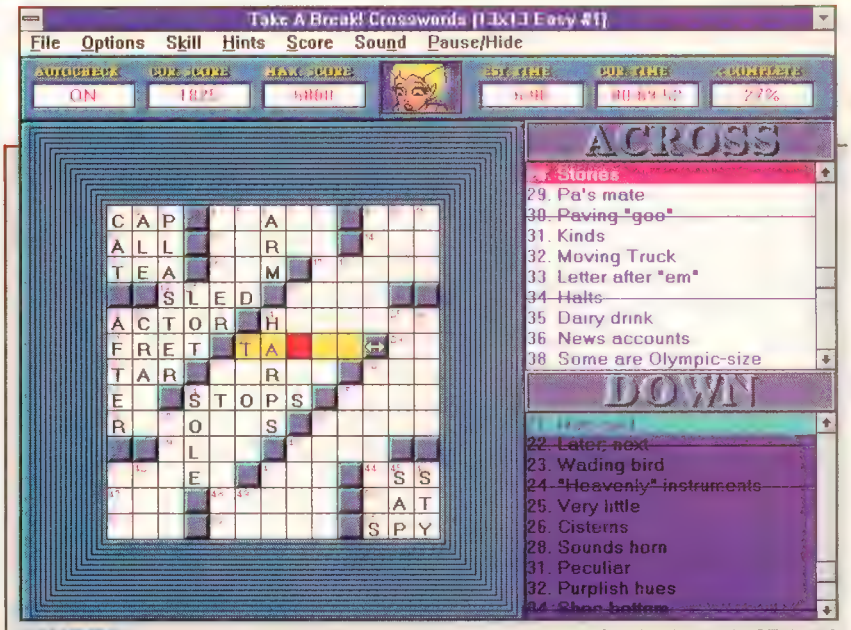
When many of you received your computer a language called BASIC was possibly supplied on a disk, buried deep in the packaging. As novice programmers many, of us are introduced to the world of computer languages via BASIC. As the language reads like English it is simpler than most to teach in early school years. The BASIC tutor takes you from the start to an intermediate level at a comfortable pace. It is not the objective of this program to make you a complete guru, and you would be best advised to keep your BASIC manual close at hand. The learning environment you will be working in is called GW-BASIC, as this is the most common version of BASIC for the PC. Early steps explain the common words used and how one builds programs using these words. This is an excellent interactive tutorial as you can try each of the described commands as you go along. A practical approach that will be welcomed by all students of this popular language.

SPREADSHEETS
A range of spreadsheets, some are Lotus 123 compatible.
Also includes graph programs that link to spreadsheets.
SPREADSHEETS

AS EASY AS

Order Code: 7080 **Total Disks: 1**

This is the latest version of the worlds best known shareware spreadsheet, namely version 5.01c. With 13 graph types, array manipulation facilities and full mouse interface, As Easy As is going to take some beating. These facilities are sure to impress expert spreadsheet users, especially those with experience of Lotus 123. The comprehensive on-screen manual will teach novice users how to use the more commonly used features. As Easy As can also simulate a 3D working spreadsheet by dividing its 2D sheet into 'panels'. Each panel then becomes a spreadsheet in its own right. Pull down menus offer easy access to the multitude of facilties and options can be selected by mouse or keyboard.



Code 10690, XWord

XWORD

Order Code: 10690 ***Total Disks: 2***

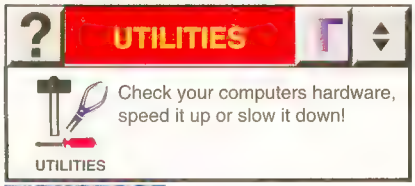
This Windows 3.x crossword program is simply excellent. The installation is very professional as is the actual program, but what else would you expect from leading leisure company, Sierra. You are presented with a blank crossword and a list of clues, and as you click on a square the relevant clue is highlighted. For crossword fans everywhere this program is a must and you can even set the difficulty levels. Requires hard disk

February Shareware

TUTOR 123

Order Code: 10550 **Total Disks: 1**

This is an interactive tutorial to teach the novice PC user the fundamentals of Lotus 1-2-3. This is a very good program but, if you are not a novice to spreadsheets or computers, you will find it frustrating as it will be too slow for you. You do not need Lotus 1-2-3- to run it.



DISKSPACE

Order Code: 10710 **Total Disks: 1**

This little utility for Windows 3.x is excellent for keeping track of your hard disk space. It continually updates so that you can see the exact amount of bytes free along with a graphical representation of the percentage free. It will save you accessing the file manager program so often. Well worth adding to your windows utilities.

RUNSINCE

Order Code: 10680 **Total Disks: 1**

For those of you who find it necessary to re-boot your system more than once a day, this utility is invaluable. You can set certain programs in your autoexec.bat file to run only once a day, every 4 hours, every week or every 3 minutes, in fact any combination of time at all. So if your virus scanner was set to check once a day it would not run it every time you boot up, only the first time you booted up that day, excellent!

SHAPESHIFTER

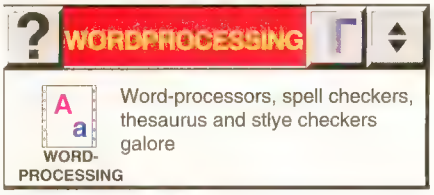
Order Code: 10780 **Total Disks: 1**

ShapeShifter is a very sophisticated program designed to make the task of converting files from one archive format to another much easier. You can even scan for viruses that would normally be missed by a standard scanner because it would have been hidden away in an archive file. This utility has too many features to list and is definitely worth getting.

PRO-CR

Order Code: 10730 **Total Disks: 1**

The first Shareware Optical Character Recognition Program. It is an excellent program that will convert a scanned file in PCX or TIFF format into Ascii text for use in your wordprocessor. It works with an HP Scanjet Directly which means you can store the text file as it scans. All you need to do then is spell check it and print it out. It is brilliant for those using fax cards who wish to change the contents of a fax and re-print it. Everyone using a scanner who could not afford the high prices demanded by commercial Optical Character Recognition packages will be delighted with it.



TYPE WRITE

Order Code: 10740 **Total Disks: 1**

This program will make your non-laser printer operate just like a typewriter so that every time a key is pressed it is sent to the printer. This may seem like a backward step but for those users who only have a computer system and printer this program is ideal for completing any form that will fit in your printer. You can still print from a file, of course.

Shareware February 1993

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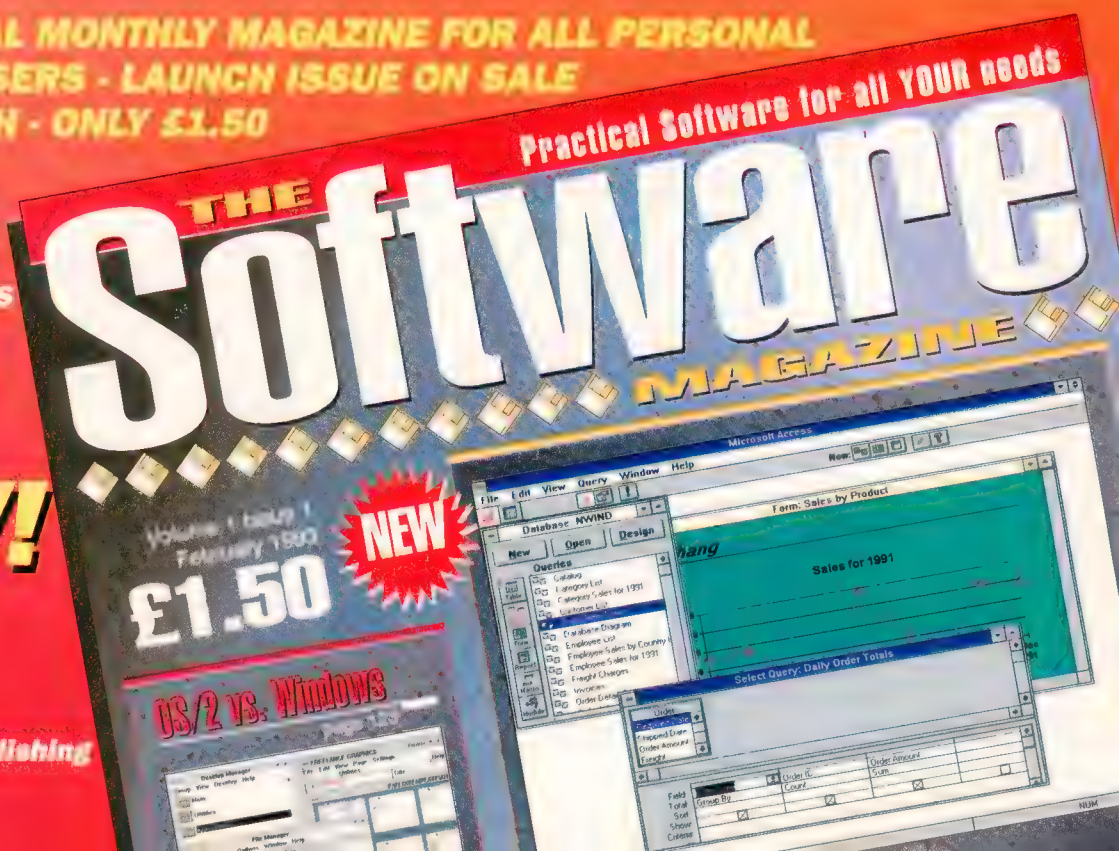


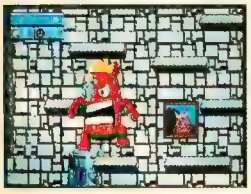
From HHL Publishing

The Lost Collection

It's Hot! It's New! It's Gamer's Edge!

The rapidly growing game collection from GAMER'S EDGE is the hottest thing to hit the boards yet! There's more variety, more flash, and more fun than you'll find anywhere else— and the game concepts can't be beat.

Here's 10 terrific games that'll knock your socks off! Each was developed exclusively for GAMER'S EDGE by ID Software. Together, they've become known as the "lost collection" of ID Software, and you'll be glad you discovered them! Especially as our special offer lets you order all ten games for just £64.75! If you order the Catacomb Trilogy as well you take all THIRTEEN games for £85.95!!!



COMMANDER KEEN IN KEEN DREAMS

A boy genius, an incredible world of evil vegetables and blazing arcade action. It all adds up to a truly captivating story line and Commander Keen fans will love this delightful episode.

Join with the young Commander as he ventures into the dream world of Tuberia, a place populated by all the vegetables on his plate... killer broccoli, attacking asparagus spears, deadly potato spuds, crazed carrots, frantic french fries... all led by King Boobus Tuber (a hideous giant potato). These menacing vegetables and their ruler are holding children captive, and Keen seeks to free the kids and restore justice by turning the tyrant tuber into hash browns!

HOVERTANK 3-D

Nuclear war is now more than a concern— it's a reality. Everyone has the bomb, and unfortunately no one is afraid to use it. It is an era of deep sorrow, of horrible mutation, and slow death.

You are Brick Sledge, mercenary and owner of the legendary Hovertank One. With amazing firepower and modular design, the HT-1 was the finest ground-based strike force in existence... until the bombs started dropping. Only a few patches of inhabitable land remain and you scratch out a living as a protection agent, a hit man, or whatever people will pay for.

Not everyone in this age is mad, however. You have been contacted by the UFA, the Utopian Future Alliance, whose noble goal is to start again with a new societal order that can learn from all the mistakes that have been made.

The UFA has presented you with a special mission. They want you to rescue the people in cities targeted for nuclear annihilation. You think this sounds easy enough, but these cities are full of nuclear mutants, armored patrols, and other terrors bent on your destruction. Here's the real catch— you're not getting teleported back until all the people are rescued or dead. And all the while, the missiles are coming...

CATACOMBS 3-D

3-D goes fantasy! Demons, orcs and trolls... oh my! You'll love this captivating adventure into other dimensions! You are Petton Everhail, high wizard of Thoria, the most powerful living wizard in the world and you've got a problem. The evil Grelminar, undead for over 200 years, has imprisoned Nemesis of Kelquest. (Nemesis is troublesome, but he's the only accessible person that can walk the Wildways, the super-natural paths to other dimensions.) Even you, an archmage, cannot travel to the places that Nemesis can. And so you journey to retrieve his body, now frozen in magical amber but still alive, from Grelminar's Keep on the dark island off the coast of Garacy. You had best be careful, or you'll be Grelminar's next prize...

SLORDAX

Legends tell of a race of superbeings who once tried to conquer the universe. Their unfathomable cruelty resulted in great suffering. They were called the Slordax, and they laid waste to galaxy upon galaxy. The war lasted for a century before the Slordax were vanquished.

Now there is a stirring in the Slordian system, a system dead for over seven hundred years. Are the Slordax coming back to life— and if so, will they return to finish what they started so long ago?

The Intergalactic Defense Alliance thinks so. In hopes of preventing another century long war, the I.D.A. has decided on a first strike designed to take the Slordax out before they grow too strong to defeat.

You have been given the fastest, deadliest ship in the galaxy, a RedDog Adaptive Strike Ship. With this technological miracle you can transform bits of destroyed enemy ships into energy sources and weapons. If your ship is hit hard and an explosion is imminent, a "whip" will transport you to a backup ship. But be careful— there are a limited number of ships, and in the words of the Director of I.D.A., "You lose these ships and we're taking it out of your (censored)."

SHADOW KNIGHTS

Naipusan was an idyllic land. Green forests covered the high ranges. Fertile terraces decorated the foothills. Verdant pastures filled the lowlands. The villages of Naipusan were tidy, well kept, clean, and the people were happy.

Then came the armies of the North, led by Sashika, the evil shogun, throwing the peaceful people of Naipusan into a panic. They were no match for the deadly northern hordes, and Naipusan fell in a few days.

Sashika and his legions looted Naipusan, stripping the island of its wealth of resources, and the people of their dignity. Fields were burned; forests felled; garrisons erected; tribute demanded. Naipusan fast became a broken, barren land, its people crushed under the heel of Sashika.

As the years passed, the evil of Sashika grew. He delved into the blackest arts. Soon all manner of supernatural horrors stalked the land enforcing Sashika's dire will. It is believed that Sashika is possessed by the demon Kuskuro who holds the power to lay waste to the land for fourteen times fourteen generations.

But all hope is not lost. The sages of the mountain wastes tell of an ancient prophecy: "The Shadow Knight shall come from the East. Wise in the ways of wizardry, he alone shall destroy the beast of the North and banish the Shogun of Death. Under his rule Naipusan shall prosper for a hundred years. His riches shall know no bounds." You are a ninja born in the east. You know an incantation or two and mix a mean potion. You are deemed wise and just— and you happen to have a special fondness for riches.

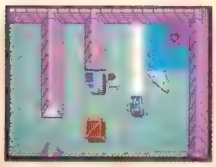
Coincidence? Not likely...

RESCUE ROVER

You are Roger— loving owner of Rover, a slightly mischievous mutt with a knack for being in the wrong place at the wrong time. Kidnapped (or dognapped) by a band of ravaging robots, Rover needs you to cleverly plan the right moves to save him. If you are successful, Rover is free; if not, he's in big trouble (we won't spoil the surprise). There are all kinds of traps along the way, and you'll have to deal with the trigger-happy Guards, hit-and-run Homingbots, rifle-ready Troopers, and searing lasers everywhere. And above all, beware of the "shoot-on-sight" Patrols.

Sound impossible? Maybe for some, but you're the craftiest person alive, aren't you? You'll have a wealth of resources at your disposal— Star Pearls, Anti-Grav Carts, Amber Energy Cards and Teleporters to name a few. So get Rover and get the heck out of there!

Incredible animated action, great sound and brilliant mind-challenging puzzles all help in making this an excellent alternative to shhot©em up games



RESCUE ROVER II – THE RETURN OF THE ROBOTS

Dognapped again! In this sequel, your canine pal is being held hostage by those maniacal robots once more, and you'll wander through level after level of complex mazes to rescue your rascal dog. And don't think you've learned all the robots' secrets in the first episode of Rescue Rover, because now there is a new band of robots with more ingenious tricks up their heavy metal sleeves. You'll face electrifying Zappers, furious Floaters, tricky Shatterblocks, and spiked floors. So put on your strategic thinking cap and go get Rover!

New puzzles, new robots, and great sound make this game both entertaining and challenging

DANGEROUS DAVE – IN THE HAUNTED MANSION

Your worst nightmare comes alive in what will become one of your favorite games. Dave's younger brother Delbert has not returned from a sleepover at a friend's house, and Dave learns that Delbert on a dare from one of his friends, entered the eerie Starlive Manor last night.

Dave shivers at the thought of Starlive Manor— a house known to be haunted by the spectre of a demented madman named Silas Star- an evil scientist whose mad experiments changed his life forever. Apparently, whatever old Silas discovered destroyed him, and his unresting soul still wanders the manor along with the products of his evil experiments. Even the police are scared and won't go in, for no one that has entered the mansion has ever returned. Dave stops just long enough to grab his new shotgun and a platoon's share of shells, then heads for the Manor.

Watch out for ghoulish monsters and ghosts that materialize out of nowhere, and maybe, if you're lucky you and Delbert can escape alive. You'll enjoy this gun-toting, action adventure. Dave gives "hack and slash" a new meaning!

THE CATACOMB ABYSS

The jewel of the GAMER'S EDGE collection. THE CATACOMB ABYSS is the Trilogy of 3-D fantasy adventures using the 3-D graphics game engine developed for GAMER'S EDGE by ID Software. Featuring among the very best graphics and animation available on the market today, THE CATACOMB ABYSS will startle you with its rich array of monsters and scenarios that will keep you riveted for many, many hours!

You are the mighty wizard who has been called upon to perform feats of magic and courage against the workings of your arch-rival, Nemesis. Your quest will lead you into the dark realms of the underworld where you will discover a myriad of bizarre and intriguing creatures set against you. Armed with your wit and the power to hurl powerful magic weapons at your opponents, you embark on an unforgettable adventure into the 3-D realm of the Abyss.

THE CATACOMB

As an all-powerful wizard, you'll journey to the ruins of the Kieralon Empire, and there you will find the Kieralon Palace. All manner of evil from goblins and gargoyles to dragons and werewolves now abide there, seeking to rob its treasures and reap its magic. You must see that the evil ones are vanquished and the Great Palace is open once again to the powers of good. Only with your great magic and wits about you can you hope to triumph.

You'll have many tools at your disposal, from the magical Bag of Holding to powerful scrolls and potions.

There are 30 fantastic levels of play in all, and you'll use the magic teleportation mirror to advance to each new level while avoiding the evil creatures who wish to destroy you. Good luck in your quest!

TILES OF THE DRAGON

Expand your cultural horizons as you learn to play TILES OF THE DRAGON, the intriguing computer version of the classic board game, Mah Jongg.

Mah Jongg, also called the Chinese Game of Four Winds, is the national game of China. In its original incarnation around the 12th century B.C., the game utilized many tiles, or pai, which were engraved with the symbols of the Chinese Army.

This intriguing game is fun to play, visually appealing, and its historical roots give it extra special value. You can play alone or in a tournament with a timed game.

Order Form

SEE OUR REGULAR FEATURE ON PAGE 112

Titles	Price	TICK
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2. Hovertank-3D	12.95	☐
3. Catacomb-3D	12.95	☐
4 .Slordax	12.95	☐
5 .Shadow Knights	12.95	☐
6 .Rescue Rover	12.95	☐
7. Rescue Rover 2	12.95	☐
8. Dangerous Dave	12.95	☐
9. The Catacomb	12.95	☐
10. Tiles of the Dragon	12.95	☐
Lost Collection (All 10)	64.75	
Catacomb Trilogy	34.08	
All 13 games	85.95	

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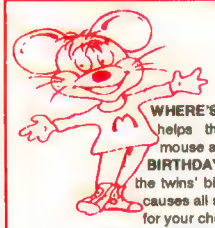

MARMALADE MOUSE ADVENTURES
Price £19.99

WHERE'S THAT MOUSE? The user helps the twins find the naughty mouse and put him to bed.
BIRTHDAY FUN! Your child goes to the twins' birthday party and Marmalade causes all sorts of trouble! Personalised for your child! Age 4 to 8

INTERACTIVE STORIES

These stories offer the child choices throughout, so that the user decides the direction the story will take. Each package also features a personalised story in which your child takes part in the action. The references to your child by name and details of favourite food, best friend, etc. keep your child involved. This, together with lively colour illustrations and music make these stories "come alive" on the computer! Each package comes complete with two stories and a printed activity booklet featuring characters from the stories. The personalised story is sent to you within 24 hours of receipt of your child's details. They need an EGA 286 or above machine with a hard disc.

TERRIBLE TWINS ADVENTURES
Price: £19.99

MONKEY BUSINESS: The Terrible TWins, Marlene and Marvyn go on a school trip to Tigerland Park!
ALL AT SEA: Your child goes on holiday with the twins and has lots of adventures! Personalised for your child. "Great fun, full of humour, should keep your kids enthralled." Public Domain Magazine. Age 7 to 10.

NEW RELEASES

Here are some of the new titles that we have recently received. We have hundreds more, so if there is something else that you want, 'phone us to see if we have it.

ENVISION PUBLISHER (2)(HD) Fantastic DeskTop Publisher. The first in Shareware!
PHYLOX (1)(286)(HD)(VGA) Great arcade game.
STARFIRE (1)(286)(VGA) Brilliant space invaders.
KEEN DREAMS (1)(640K)(EGA)(HD) The "lost" Commander Keen adventure!
SPELLBOUND (1)(3.5" only)(HD) Playable demo of children's arc2ade spelling game.
OVERKILL (1)(3.5" only)(CGA)(HD) Great space invaders shoot 'em up game.
CORNCOB 3D (1)(VGA(HD) Quality 3D flight sim.
SPEAR OF DESTINY (1)(286)(VGA)(3.5" only) The Wolfenstein sequel, amazing virtual reality.
MATHS RESCUE (1)(EGA)(HD)(3.5" only) Similar to Word Rescue but for maths.
THE PERFECT CV (2) Great new CV writer.
WORD TRANSLATOR FOR WINDOWS (3)(HD) Translates words/documents into/from foreign languages.
CONQUEST V1.5 (1)(EGA) V. good world conquest game.
DEATH WATCH (1)(VGA) 3d fantasy role playing game.
DARNIT (1)(EGA)(mouse) Excellent card game.
KINGS UP (1) Good new Windows card game.

TESTWARE'S TOP SHAREWARE

(Based on sales in the last three months)

COMMANDER KEEN III (1)(HD) "Aliens Ate My Babysitter"
HOORAY FOR HENRIETTA (VGA)(1)(HD) Latest version.
COOPER SET PCX (2) Over 1500 clip art pictures for DTP
COMMANDER KEEN I (1) One of the best ever PC games!
GRAPHIC WORKSHOP (2)(HD) Converts, views and edits.
COMMANDER KEEN II (2)(HD)(EGA) "Goodbye Galaxy"
HENRIETTA'S BOOK OF SPELLS (VGA)(1)(HD) New version.
JILL OF THE JUNGLE (1)(HD) Super-heroine Jill is a hit!
WOLFENSTEIN 3D (1)(HD)(286) Virtual Reality game.
WHERE'S THAT MOUSE? (1)(HD)(EGA)(286) age 4 to 8.
PRINTPARTNER (1) For cards, banners, calendars, lthead.
TOUCH TYPE TUTOR (1) Easy to use typing tutor.
C TUTOR (2) Learn to program in C.
ASEASYAS (1) Famous 123-style spreadsheet.
COSMO'S COSMIC ADVENTURE (1)(HD)(286) The best yet?
BROTHER'S KEEPER (4)(HD) Genealogy program.
FAMILY TREE (1) Another popular family tree program.
DRAFT CHOICE (1) Accurate, easy to use CAD program.
ASTROMART (1) Calculates Astral charts.
MONKEY BUSINESS II (1)(EGA)(HD)(286) Age 7 to 10
PERSONAL C COMPILER (1) Good for learning C language.
WINDOWS GAMES (1) 12 games for MSWindows.
CHARTS UNLIMITED (1) Flowcharts/electrical/Gantt, etc.
SHOOTING GALLERY (1)(VGA) 7 shooting competitions.
PKZIP/PKUNZIP (1) The indespensible file archiver.
BOLO ADVENTURES (1)(EGA) Forty levels, superb graphics.
HYPERDISK (1)(HD) Very flexible disc caching program.
FORD SIMULATOR III (4)(HD)(VGA) Test drive a Ford today!
GALAXY LITE (1) WordStar compatible word processor.
EASY DRAW (1) Technical drawing, flowcharts, diagrams.
FOOTBALL FORECAST (1) Helps you find the score draws!
VGA PAINT (1) Excellent graphics/drawing program.
DARK AGES (1)(HD)(286) Great game.
SCREEN PEACE (1) Screen savers for MSWindows.
MCAFEE VIRUS TOOLS (2) Virus detection and clean up.
FRENCH TUTORS 1 & 2 (2) Multiple choice tests.
BACKGAMMON (1) Plus Cribbage and Draughts. Very good!
TUTOR 1-2-3 (1) Interactive tutorial for beginners.
COPYMASTER (1) Great disc copying utilities.
MR LABEL (1) Flexible label making program.
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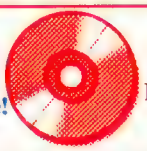

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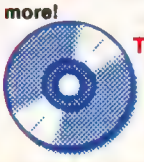

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QBasic

HINTS & TIPS
STEP BY STEP
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QBasic This month we go loopy with Mike James

Using the facilities of QBasic introduced in Parts One and Two of this series, you can write programs that behave more or less like a calculator. You can read in some data, work something out and show the results - but programming is much more than this. If you could only create the equivalent of a calculator, then it wouldn't be worth learning. In this and the next part of Qbasic, the two key ideas of programming are introduced: loops and selects. These ideas can be difficult to absorb at first but they really do represent the transition from non-programmer to programmer - so give them the time they deserve.

STEP 1 The loop

Let me first give you an example of a program that, at the moment, you cannot write. All I want is a program that will print the word "Hello" on the screen three times. Easy, I hope you think. (See box1)

```
PRINT "Hello"
PRINT "Hello"
PRINT "Hello"
```
Box 1

Now write the same program to print 100 hellos on the screen. You can see that this method of repeating yourself isn't a lot of fun. The Basic 'loop' was invented to solve exactly this problem. Any instructions that are between the commands DO and LOOP are repeated over and over again. For example (See box 2),

```
DO
PRINT "Hello"
LOOP
```
Box 2

will print "Hello" on the screen over and over again. Try it and see. How do you stop it? The answer is to press Ctrl-Break or Ctrl-C which are the signal to Qbasic that you want to stop a program running. You can place any instructions between the DO and LOOP and they will be repeated forever.

STEP 2 Stopping

The key word here is 'forever'. We usually don't want a loop that goes on forever or rather until Ctrl-Break is pressed or the machine is unplugged. There has to be some way of stopping the repeat. Usually you want to repeat a set of actions until some condition has been satisfied. For example, if you paint the walls of a room you would repeat the action until you had covered the original colour sufficiently. This is a loop with a condition that brings it to an end. (See box 3)

```
DO
paint room
let paint dry
if old colour is
covered then exit loop
LOOP
```
Box 3

This loop obviously isn't Basic but it does convey the flavour of what we are trying to do. In fact apart from the vagueness of the commands and conditions it is surprisingly close to Basic.

In Qbasic you can write an exit from a loop as (See box 4)

```
IF condition THEN EXIT DO
```
Box 4

and if the condition turns out to be true the loop stops. The condition can be any sort of test that can be evaluated to true or false. You can compare the values in variables or constants using = for equals, > for greater than, < for less than and <> for not equal to. You can also put = and < and > together to make => greater than or equal too and <= smaller than or equal to. Don't worry too much about the exact form of conditions because they will get easier after a few examples.

So for example (See box 5).

```
DO
INPUT a
PRINT a
IF a=0 THEN EXIT DO
LOOP
```
Box 5

If you find this program a little daunting then ignore the IF..THEN EXIT DO first. When you are trying to understand or write a loop it is often good practice to first look at what the loop is doing when it is going and then figure out what makes the repeat stop. In this case the repeated instructions reads in a value into the variable a and then prints the same value on the screen. This would go on repeating forever but the IF..THEN EXIT DO command tests to see if a is equal to zero. If it is then the loop ends. So what does the loop do? It repeatedly reads values and prints them until you type a 0 when it stops.

There are other forms of the loop but for the moment I would ask you to stick with this most basic form until you get 100% used to it.

STEP 3 Counting

One of the most common forms of repeating something is repeating it a given number of times. Before reading on, see if you can write a program to print "Hello" exactly 5 times. Don't worry if you can't because to do the job you need a new idea - a counter. Take a look at the following instruction (See box 6).

```
count=count+1
```
Box 6

What does it do? As long as you are completely happy about assignment and variables you should be able to work it out. First the value that is stored in count is retrieved and one is added to it. This new value is then stored back in the variable the original value came from. The result is that what ever value was originally stored in count it is now one bigger. This behaviour of increasing by one each time is exactly what you need to implement a counter and you should now find it easy to understand the following loop (See box 7).

```
count=0
DO
PRINT "Hello"
count=count+1
IF count=THEN EXIT DO
LOOP
```
Box 7

Each time round the loop, one is added to count and so it really does keep a count of the number of times that the loop has been carried out. The IF..THEN EXIT DO brings the loop to an end when the count is exactly 5. After seeing this you should be able to write a loop that prints any number of "Hellos" or does anything any number of times.

STEP 4 FOR

Doing something a given number of times is so common a requirement that there is a special shorthand form of loop for it. If you want to print "Hello" 10 times say you would write (See box 8).

```
FOR i=1 TO 10
PRINT "Hello"
NEXT i
```
Box 8

Notice that you don't need to introduce a counter of your own because i automatically does the job. It starts out at 1 and each time though the loop it increases by 1 so counting the number of times the loop has executed. If you want to see this change the PRINT statement to PRINT i and you will see 1, 2, 3...up to 10. Notice that the FOR

loop is easier to use but it doesn't introduce anything new. Use a FOR loop when you know how many times you want to repeat something.

STEP 5 Going FORther

Skip this step until you are sure that you understand the basic FOR loop.

Getting a little more technical it is worth saying that the general form of the FOR loop is (See box 9).

```
FOR variable=s TO f
```
Box 9

The variable starts off the loop with the value s and the loop is repeated until it reaches f. Normally a loop variable or index only goes up by one each time round the loop but you can make it go up by any amount by adding STEP size onto the end of the statement. For example (See box 10).

```
FOR i=2 TO 12 STEP 2
PRINT i
NEXT i
```
Box 10

This will go round the loop and print 2, 4, 6, 8, 10, 12. Notice also that the start, finish and step values of a FOR loop can be determined by variables. For example (See box 11).

```
INPUT s
FOR i=s to 10
PRINT i
NEXT i
```
Box 11

This will start the loop off from what ever value of s the user enters.

At this point you may be worried by what happens if the index is never actually equal to the final value. For example, what value of i does this FOR loop finish with (See box 12).

```
FOR i=2 to 11 STEP 2
PRINT i
NEXT i
```
Box 12

As it goes 2, 4, 6, 8, 10, the next value would be 12 and this isn't equal to 11 and the index i never is equal to 11. The solution to this problem is that the loop stops when the index is greater than or equal to the final value. In other words, if you print the index you will never see a value greater than the final value specified. In the case of the example, this means that the loop ends with i equal to 10 because the next value of i would be larger than 11.

Next month: Making choices.

A selection of loops

Rather than one big example I thought you might like to see a couple of small examples showing loop at work. The first will print a nicely formatted multiplication table. It asks you for which table you want and then prints 1 to 12 times it.

```
CLS
PRINT "Which table";
INPUT n
FOR i = 1 TO 12
result = i * n
PRINT " ";i;"x";n;"="; result
NEXT i
```

```
Which table ? 7
 1 x 7 = 7
 2 x 7 = 14
 3 x 7 = 21
 4 x 7 = 28
 5 x 7 = 35
 6 x 7 = 42
 7 x 7 = 49
 8 x 7 = 56
 9 x 7 = 63
 10 x 7 = 70
 11 x 7 = 77
 12 x 7 = 84
```

The times table output

The only difficult part about this program is the very complicated looking print statement. When you take the formatting away it simply prints i, n and result.

The second example is another table printing program only this time it is a table of temperature in Centigrade to equivalent temperature in Fahrenheit -

```
CLS
PRINT "Temperature Tables"
PRINT "Starting temperature"
INPUT start
PRINT "Final temperature"
INPUT final
PRINT
FOR i = start TO final
t = i  9 / 5 + 32
PRINT i; "degrees Centigrade =
";t;"degrees Fahrenheit"
NEXT i
```

The temperature conversion table

The interesting thing about this program is the way that the start and final values are specified as variables. You can convert this program to print a table of any conversion just by entering the correct conversion formula before the PRINT.

The final example is short but it includes a new idea - the running sum. The program allows the user to type in values and these are added to a running sum Total until the user types a 0 when the result is printed -

```
Total = 0
DO
INPUT x
IF x = 0 THEN EXIT DO
Total = Total + x
LOOP
PRINT "Total ="; Total
```

```
? 2
? 3
? 7
? 5
? 10
? 32
? 34
? 3
? 0
Total = 96
```

The running sum

Make sure that you understand the way that Total is used in this program as it is one of the fundamental techniques.

If you still the examples are a bit on the small side I would agree but after the IF statement has been introduced next month the sky's the limit as there is very little extra to learn!

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Quickies

REVIEW
NEW PRODUCTS
QUICKIES
GAMES

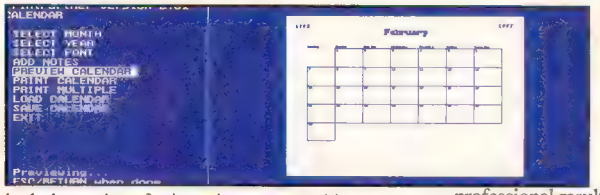
16 million colours on your screen, 50 extra fonts or 270,000 synonyms are offered in this month's quickies selection. Or perhaps you are thinking of moving house or redesigning the furniture in your living room - here Design Your Own Home Interiors may help. You could, of course, use a budget drawing package such as Computer Easy Draw for your designing and print a quality laser image with Pizazz Plus.

Help is also at hand for new Wordperfect users with Microref Quick Help.

If all this excites you enough to shout from the rooftops, then why not also try Print Partner - a shareware utility for printing signs and banners.

QUICKIES

Print Partner



Print Partner is a simple shareware utility that enables the user to design and print out banners, greetings cards, signs, letter headings and calendars. The software comes on one disk and can be loaded and run from the floppy disk drive. This program also supports 27 of the most commonly used printers, so there should be no problem finding a driver compatible with your own. Each item has its own main menu which includes options for inserting text, graphics, printing, print multiple copies, preview (with the exception of banners and signs), loading and saving. If you wanted to make a banner for instance you would highlight banner on the main menu, then choose 'font', and choose one of the nine fancy fonts provided. You then have the option to type in either one or two lines of text, before returning to the main menu. If you wish to add a graphic to the banner you can highlight 'graphic' and choose a picture from the comprehensive list included with the package. You are not just limited to these fonts and graphics however, as there is also an option to import from other applications or create your own with the simple drawing utility provided. As this drawing feature relies on the placing of a series of dots on the screen though, it is not very effective and difficult to use.

Apart from the primitive drawing feature, Print Partner is an easy way to design and create your own stationery, banners, signs and so on. Don't expect to achieve highly professional results from Print Partner, however, this one is best used just for fun.

FAX BOX

- **Product:** Print Partner
- **Price:** £3.00 (registration £23.50)
- **Publisher:** Testware Ltd
- **Tel:** 0423 886415

Range of Features 20
Overall Speed 30
Ease of Use 40
Verdict 30

✓ Quick & easy way to produce banners etc.
✗ Unsophisticated picture - editing feature

Grizzled Skipper

The grizzled Skipper is a graphics accelerator card that replaces the standard video driver installed in your computer. It is capable of displaying photo-realistic 24-bit colour imagesat a resolution of 640 x 480 pixels, and high resolution , flicker-free displays at up to 1280 x 1024 screen resolution. Both VGA and SVGA VGA monitors are supported and the manufacturer's claim that the Grizzled Skipper accelerator board is capable of almost 30 times the speed performance of the standard VGA controller card.

The Grizzled Skipper is supplied with a comprehensive set of drivers on three 3.5" disks. These include a driver for Windows 3.1 which support all the Windows 3.1 display modes including the 24-bit, 16.7 million colour and high-resolution non-interlaced modes.

In our own tests we found that the Grizzled Skipper with 512K RAM fitted showed little speed advantage over a SVGA card with 1MB RAM which is commonly fitted in many high-end machines.

To install the card, you must, of course, open up your system unit casing as the card fits in a spare expansion slot. The card will not work in unison with another video card so, if you are upgrading an existing machine, you will have to dispose of the original card. After installation, if the monitor does not work at all, check that the card is firmly pushed into its slot. If the monitor works but appears to have lost one or more of the red, blue or green colours, the cable connecting the card to the monitor is not making a good connection. Make sure that the fixing screws are tightened and that none of the pins are bent.The Grizzled Skipper instruction manual is nicely written and covers the the installation procedure in detail.

Why is the card called a Grizzled Skipper? There is no indication as to why this name was chosen but you may be interested to know that a Grizzled Skipper is a butterfly that, unlike the Grizzled Skipper card, is not at all colourful.

FAX BOX

- **Product:** Grizzled Skipper
- **Price:** £279
- **Publisher:** Computer Resources
- **Tel:** 0272 570516

Range of Features 60
Overall Speed 60
Ease of Use 60
Verdict 60

✓ Good true 24-bit colour
✗ Installed memory to little

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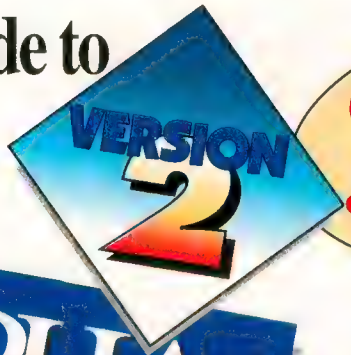

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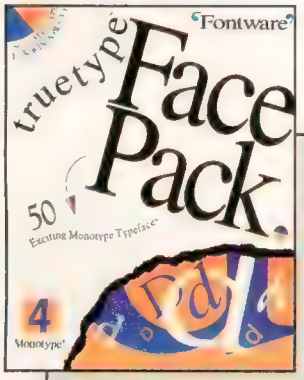


Face Pack

Face Pack is a budget-priced collection of 50 MonoType text and decorative fonts supplied in TrueType format. The fonts are compatible with all word processors, presentation packages, DTP software and related applications running under Windows 3.1, providing easy access to a whole range of different typefaces as and when required.

The fonts come on two 3.5" floppy disks and installation is simplicity itself. From within Windows you open the Control Panel and choose 'Fonts', then click on 'Add Fonts' and choose the drive from which the software is to be installed. A Face Pack disk is then inserted into the disk drive and you can either choose individual fonts from the list or select them all before pressing OK to install. The fonts should then appear in your Windows applications. With some applications though, you may need to change your printer set-up in order to be able to use them. If you have HP Laserjet IIP installed as your printer, for example, you will have to change to another as none of these TrueType fonts are compatible with this particular type of printer. As there is no documentation provided other than the installation procedure, which is printed on the box, it is probably best to check with Fontware on this point before buying.

On the whole, however, Face Pack offers a good variety of scalable fonts and is exceptional value for money especially where there is frequent use of DTP.

FAX BOX

- **Product:** Face Pack
- **Price:** £79.00 + VAT + P&P
- **Publisher:** Fontware Limited
- **Tel:** 0329 822857

Range of features 40
Overall Speed 60
Ease of Use 95
Verdict 60

✓ Good value font package, easy to install
✗ No documentation

Computer Easy Draw

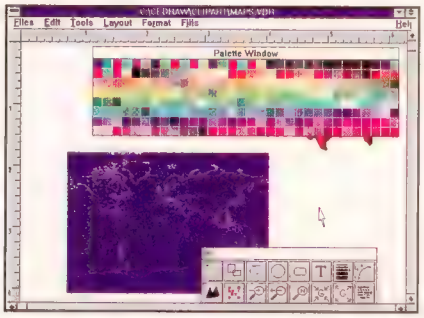
Computer Easy Draw is a competitively priced drawing package for use with Windows 3.0 and 3.1, and has many of the features you would expect from a more expensive program, plus easy-to-use animation software.

The default toolbox contains tools for drawing rectangles, circles, rounded rectangles, closed polygons, circles, and bezier curves, plus commands such as zoom in, display text, group, ungroup, choose line width, choose line type and an icon for the colour palette. Freehand, closed freehand, arc, pie wedge, open polygon, and open bezier tools can be called up from a pull-down menu or you can add them to your own customised toolbox so that the most frequently used tools are always close at hand.

Drawings can be resized, flipped horizontally or vertically, stretched, compressed or rotated, and a useful feature is the ability to set the cursor to move only horizontally or vertically in order to draw straight lines.

A series of drawings may be selected and used in a slide show, making the program ideal for use as a presentation tool. You can even import graphics files in a variety of formats from other applications for this purpose.

A palette with 256 colours allows simple selection of colours for lines by clicking the left mouse button and for fills by clicking the right mouse button. By choosing one of the colours and holding down the shift key, you can then create your own colour, but rather than adding a new colour to the palette this replaces the



original. As all 256 colours are displayed at once, the palette takes up quite a large proportion of the screen, and it would have been preferable to be able to select the ones used the most and create your own custom palette.

Text can be bold, underlined or italicised and the 24 fonts provided may be of any point size. There are also options for resizing text, fitting text to a path or a curve, or you can import text from a word processing package and paste it directly into your drawing. These text handling capabilities are adequate for most uses, but the font list is rather limited and the font window doesn't show you what the font looks like before you select it. There are also some more advanced functions so that the user can achieve special effects, such as the ability to fill text with patterns, shadow, invert, outline and so on, plus a further font list. Unfortunately however, these functions are poorly documented and it takes quite some time to discover how to use them.

The utility ANIMaxx included with ComputerEasy Draw gives the user the opportunity to animate drawings. It uses a technique called frame flipping in which a series of still images are changed slightly each time a frame is taken. When these frames are played back they give an impression of motion.

This is easy enough to use in theory and works effectively. It is, however, time consuming and requires a fair amount of practice before anything worthwhile is produced.

Although ComputerEasy Draw is more basic than the more expensive packages, you won't be paying for a lot of functions that you will rarely or never use, and it's certainly rich enough in features to make it a worthwhile investment for most everyday drawing requirements.

FAX BOX

- **Product:** Computer Easy Draw for Windows
- **Price:** £99.95 + VAT + P&P
- **Publisher:** Guildsoft
- **Tel:** 0752 606200

Ease of Use 60
Versatility 60
Speed 80
Verdict 60

✓ Good documentation and easy to use drawing tools
✗ Limited text handling capabilities

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The Oxford Thesaurus Electronic Edition

Although the majority of modern word processing packages have a built-in Thesaurus, their content is limited and you will often find yourself looking up the word you require in a book. The Oxford Thesaurus Electronic Edition offers a software solution to this problem by providing access to over 270,000 synonyms plus a large choice of sample sentences and phrases.

Installation of the program is straightforward, but you do need to make sure you have at least 3.5MB of free hard disk space and a minimum 150K of free RAM in order to accommodate it - not a lot when you consider the amount of data contained within. Once it's installed, you have the choice of running the Thesaurus as a standalone program or as a memory resident one.

On starting the Thesaurus, you are presented with the option of choosing one of two books, Thesaurus or Synonym. Entering a word to search for in the Thesaurus input box produces a list of comprehensive information about that word, including advice on dialects, writing style and what context the word should be used in. Choosing to enter a word in the Synonym input box calls up a list of headwords in alphabetical order, one of these can be selected and examined in more detail in the Thesaurus. A whole word may be entered or a 'wildcard' can be used if you are unsure of the spelling of a word. So for example if you typed 'c*ne*' in the input box, the software would come up with a list of seven possible words. It is also possible to carry out a search by highlighting a word in your original work, cut and paste sections of the Thesaurus into your document and load the program into a DOS Window in 386 enhanced mode for use with Windows.

The Oxford Thesaurus Electronic Edition is very easy to use, the results of a search appear on the screen almost instantaneously and it lacks nothing that the book would have. This is an excellent software package and presented no problems either on installation or use. It would, however, be hard to justify spending £99 unless it is likely to get a great deal of use.

FAX BOX

- **Product:** Oxford Thesaurus Electronic Edition
- **Price:** £49.95 + VAT + P&P
- **Publisher:** Oxford University Press
- **Tel:** 0865 56767

Range of Features 60

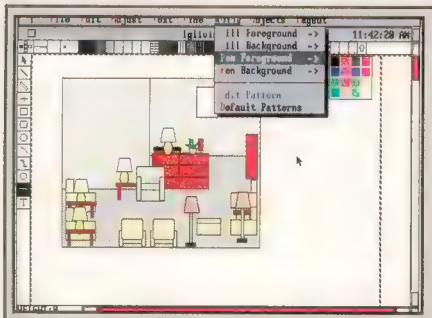
Overall Speed 99

Ease of Use 99

Verdict 80

✓ Surpasses those provided with a word processing package.

✗ Expensive



Design Your Own Home - Interiors

If you've ever decided, in a flash of inspiration to change the furniture round in a particular room, you'll know that this is one of the jobs you end up wishing you'd never started. It usually turns into a frustrating, time consuming and exhausting task, particularly when you move pieces of furniture only to find that they don't fit in the place you wanted to put them. This is one of the areas in which Abracadata's Design Your Own Home - Interiors may be of help. The package is basically a DOS based drawing tool with which you can draw rooms, and then place objects within them and move them around until they are in the desired location. In order to run the software, which is supplied on both 5.25" and 3.5" floppy disks, you will need at least 640k RAM; Hercules, EGA, CGA or VGA graphics and a mouse.

To design a room you first select a scale and draw the outline of the walls from the top view. You may then proceed with filling the room with furnishings. There is a comprehensive choice of pre-drawn objects supplied with this package and a a pull-down menu includes furnishings for the living room, dining room, kitchen, bedroom and bathroom, plus a list of other fixtures and fittings. Each of these objects can be resized so, for example, if you have a sofa that is 4' 6" long, you could change the size of the sofa in the database to correspond with that of your own. All furnishings can also be altered by changing the colour, or using one of the many fill patterns shown along the top of the screen. For the more adventurous, oval, line, rectangle, hollow line, constrained line, arc, polygon and freehand tools are provided for drawing custom objects, or creating your own fill patterns. There are also three scalable fonts, that can be changed in size and style, and a large range of printer drivers to enable you to print your finished work.

The completed drawing can be viewed from four different perspectives to give a more three-dimensional view of what your room will look like.

It is unlikely that any of your furniture will look like the pre-drawn objects in the program as it is quite Americanised and a bit outdated, even so the program is fun and easy to use. The fact that you can place objects of the correct size in position also means that the program will help to avoid the heavy work of moving furniture or fixtures and fittings only to find they don't fit. This applies whether you are just rearranging a room, thinking of buying some new items, or have just moved in and are starting from scratch.

FAX BOX

- **Product:** Design Your Own Home - Interior
- **Price:** £36.25 + £3.50 P&P
- **Publisher:** Time Project UK Ltd
- **Tel:** 0203 325921

Range of Features 60

Overall Speed 60

Ease of Use 80

Verdict 60

✓ Takes the heavy work out of redesigning rooms

✗ Furniture design outdated & Americanised

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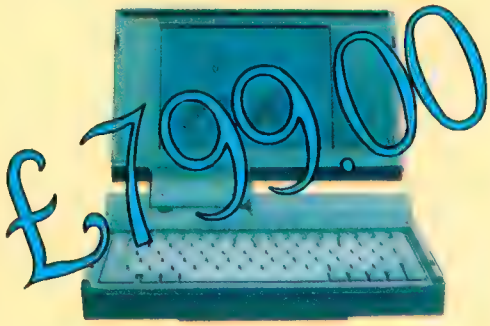

Cobra 386 SX25 Notebook

2Mb RAM, 60Mb HDD, VGA Backlit display external Keyboard, VGA, expansion, printer & Mouse ports, Leather Carry Case, Mains adaptor and Dos 5.0.

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Processor	80286	80386SX	80386DX	CX486DLC	80486DX	80486DX	80486DX
Speed/Landmark	25/31		40/65	33/107	33/152	50/230	66/250+
Cache (Max)	0kb	0kb	128Kb	64Kb/128	256/256	256/256	256/256
RAM (Max)	2Mb (4Mb)	2Mb (16Mb)	4Mb (32Mb)	4Mb (32Mb)	4Mb (32Mb)	4Mb (32Mb)	4Mb (32Mb)
Floppy Drives	1.44	1.44	1.44	1.44	1.44	1.44	1.44
Video Card	512k	512k	1Mb Orchid	1Mb Orchid	1Mb Orchid	1Mb Orchid	1Mb Orchid
14" Non Interlaced Colour SVGA	YES	YES	YES	YES	YES	YES	YES
No Hard disk	£414	£454	£569	£609	£799	£1035	£1222
40Mb (28Ms)	£510	£549	£668	£708	£898	£1134	£1321
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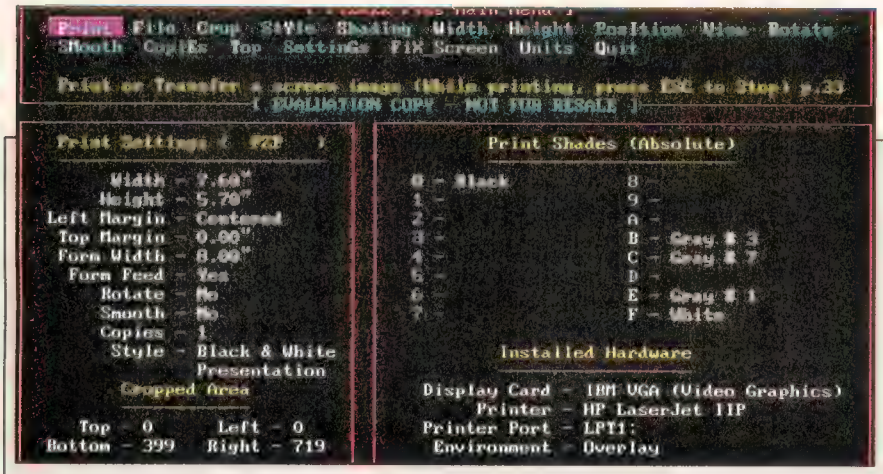
Standard Features: 3.5" 1.44Mb Floppy, 102 Key UK Keyboard, 2 Serial / 1 Parallel /1 Game Ports, Desktop or Mini Tower Case, Plus a Non Interlaced 14" Super VGA Colour Monitor and AMI BIOS.

Please Note: All prices quoted exclude VAT & Delivery and are subject to change without prior notice.

REVIEW
NEW PRODUCTS
QUICKIES
GAMES



Pizazz Plus

Pizazz Plus is a software package with screen capture and file conversion utilities that will allow you to enhance your printed images. Installation of the software which is supplied on just one disk, doesn't take long, but it does ask you questions about the configuration of your system such as which kind of computer is being used, the name of the graphics adapter and the resolution. You will also be asked what type of printer you have (there is an impressive list of 431 supported printers to choose from), and which port it is connected to. It is therefore important to have all of this information to hand before beginning the installation procedure.

Pizazz Plus is a TSR (Terminate and Stay Resident) program, so once it is loaded it will be there whenever it is needed. To invoke the program you first start the application from which you wish to print, open up the relevant file, and then press shift and the print screen key. This captures the screen on which you have been working and brings up the Pizazz Plus Main Menu. From here you can use the pull down menus to adjust the size, and proportion of your print image so that it will fit wherever you want it on the page, crop the image so that only part of it will be printed, save it as one of a variety of other file formats such as PCX, IMG, TIF and so on, and select the style and print quality. There are also options to rotate, smooth, set the number of copies to be printed and specify which units are to be used for measurements.

The software supports up to 256 shades of grey, and colour images are automatically converted to black and white for printing, text screens can be converted to graphics, or colour images can be adjusted on screen to further enhance the depth of colour used.

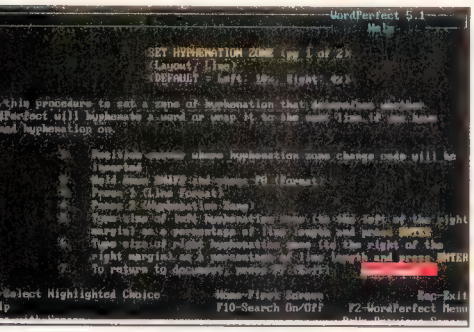
Pizazz Plus can also be used with Windows 3.0 or later instructions for which are documented in the appendices at the end of the manual. This package is really quite easy to use, but because of the nature of the documentation it is probably best for the beginner to have some experienced help especially on installation. It does however, make printed images look a lot more professional, and should be ideal for use anywhere where presentation is a priority.

FAX BOX

- **Product:** Pizazz Plus 3.0
- **Price:** £80 + VAT incl. P&P
- **Publisher:** EB Graph Ltd
- **Tel:** 081 904 2231/2

Range of Features 60
Overall Speed 60
Ease of Use 60
Verdict 60

✓ Enhances your printed images
✗ Documentation could be better



Quick Help for WordPerfect 5.1

Quick Help for WordPerfect 5.1 from Microref is a TSR (Terminate and Stay Resident) program that allows the user to access Help for WordPerfect 5.1 for DOS on two levels: Instant Help and Expanded Help. Instant Help gives an immediate and concise answer to your query and Expanded Help explores the chosen topic in more depth with step-by-step instructions and some working examples.

The software is supplied on both 3.5" and 5.25" disks and once installed the program can be opened while you are still working on your document by pressing ALT and 0 (although you can choose your own Hot Key combination if you wish). The screen then gives you the option of choosing the level of help required. You can now move the highlight to the subject that is being queried, press return and view the information. If you need to look up a command and are not sure under which topic to search, pressing F10 will bring up a Search facility into which a word that is relevant to that particular command may be inserted. Search responds by finding every instance where this word appears.

You could be forgiven for thinking at first that Quick Help for WordPerfect has very few advantages over the help already supplied with WordPerfect. Given that it is unobtrusive though, and it is possible to obtain a very concise response to a query, rather than having to read through quite a lot of text before finding the required information, it will at the very least save some time.

FAX BOX

- **Product:** Microref Quick Help - Wordperfect 5.1
- **Price:** £32.25
- **Publisher:** Computer Manuals Ltd
- **Tel:** 021 706 6000

Range of Features 40
Overall Speed 80
Ease of Use 95
Verdict 60

✓ Offers help for WordPerfect 5.1 on instant and more indepth levels
✗ No significant problems

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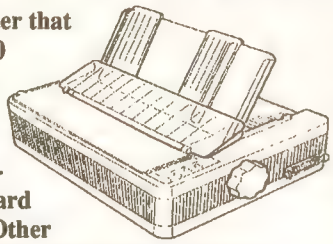
SAMSUNG 9-PIN PRINTER



80 Column Dot Matrix printer that prints at 300cps draft and 50 cps in NLQ Mode. Standard Parallel interface with Friction & Tractor feed. IBM Proprinter & Epson fx-85 emulation and uses standard Epson FX-80 type ribbons. Other notable features include a paper park and a 3K byte printer buffer. The controls are front-panel mounted for ease-of-use.

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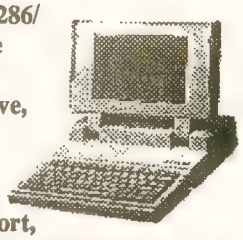
286/20MHz PORTABLE



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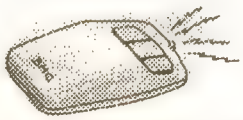

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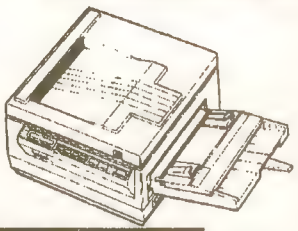
LASER REDUCTIONS



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Free! Aldus PAGEMAKER version 3 (College Edition) with this printer, value £70.

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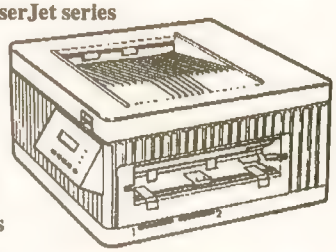

Triumph Adler Flagship. HP LaserJet series 11 and LaserJet Plus-PCL4 compatible. postscript optional. 6 pages per minute, and 300 x 300 graphics resolution. 512K RAM expandable to 4Mb. Centronics interface. 1500 page toner life, 10,000 copy drum life, and 100,000 pages service. Prints landscape or portrait. 8 resident fonts. First page print 20 seconds. 12 month on-site warranty included.

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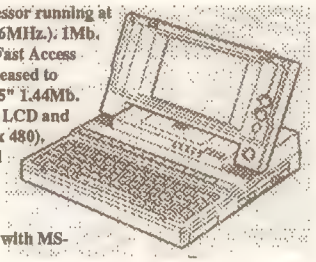

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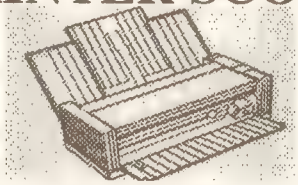

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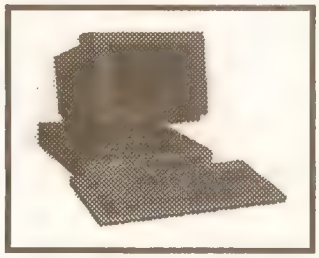

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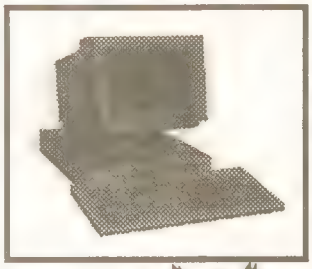

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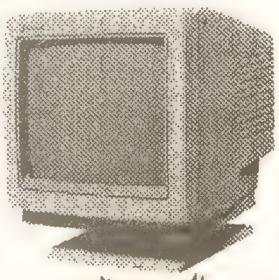

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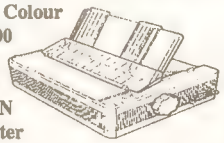

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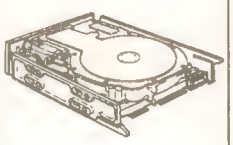

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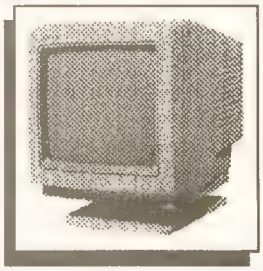

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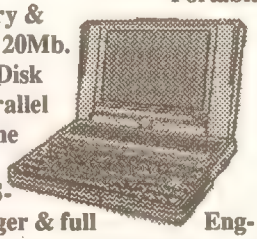

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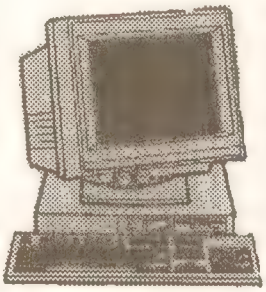

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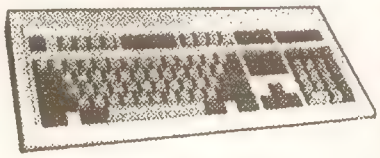

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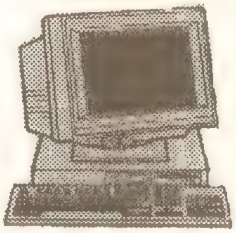

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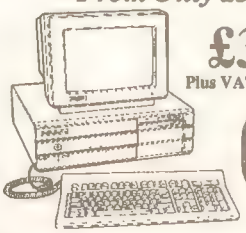

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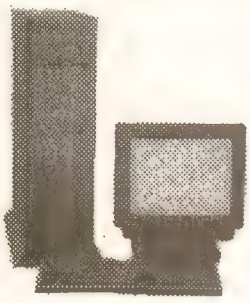

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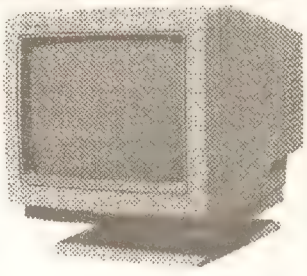

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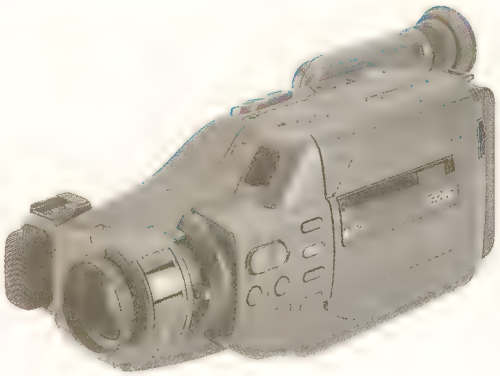

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Hardware Answers

HARDWARE Q AND A

Q Remember the BBC?

I have recently switched from using a BBC Micro (remember those?) to using a 486PC which is quite a jump. At present, I am getting to grips with Windows and memory control but soon I hope to indulge in my main interest, electronics. I used my Beeb to control many things from an alarm system to a train set and, apart from one VIA, I managed not to damage the computer thanks to a small buffer box. The box allowed me to port the processor and use several facilities, including generating interrupts, through an optical isolator so try as I might the machine was protected. Is such a buffer available for the 486 PC on the ISA bus or, if not, are there plans available to build one? I would be grateful if you could recommend any good books which introduce the subject of interfacing a PC to a relative beginner.

Simon Faulkner, Uxbridge

A Do I remember the Beeb? Do you know how many books I wrote about it? A wonderful machine but the PC is better. Unfortunately, people in general just aren't interested in interfacing so it isn't such a high profile topic any more. Still you can buy a range of ISA plug-in cards that can be used in much the same way that the old VIA interface was and, if you are prepared to pay a little extra, you can get an interface board that is isolated either by relays or by opto devices. Try Chipboards (0483) 797959. As to books I can recommend: *Interfacing to the IBM Personal Computer* by L.C Eggebrecht published by Sams and available from Computer Manuals (021) 707 6000. Although this is a bit old - first published ten years ago - the PC has not changed too much in this respect. Another title worth looking out for is: *Handbook of Software and Hardware Interfacing for IBM PCs* by J P Royer, published by Prentice-Hall in 1987.

Q I have an IBM AT and an SVGA monitor that I use for wordprocessing which is quite adequate for my needs, but my son would like to buy some games like Flight Simulator 4 etc. I am told that the computer runs at 6Mhz which is too slow for these programs. I understand that I can change the motherboard for a 386 25Mhz SX or 386 25 Mhz DX with 2Mb of RAM for about £130. Would this be possible, and what is the difference between a DX and SX? Your help on this matter would be appreciated but not too technical please as I am only a novice in these matters.

P. Leatherbarrow, Rochdale

A Changing the motherboard in a machine is relatively easy as long as the box that you are trying to put the new board in is standard size. If you have an IBM AT then the motherboard and case are absolutely standard but you still need to be slightly more than a novice to do the job. It is mainly a matter of unplugging cables, undoing screws and then fitting the new board. In the case of an AT to 386 upgrade there are few other problems as the keyboard, disk controller and video should all work with the new motherboard.

As to the difference between SX and DX, it comes down to a matter of speed. In principle a DX model is roughly twice a fast as an SX model of the same clock speed. In practice the difference isn't as great. As 386SX's are selling at a bargain price at the moment, this is an excellent upgrade option.

For more information I can recommend two books : *Inside the Grey Box* by Dr P D Coker, which covers the practical aspects of upgrading as it is written as a "do-it-yourself" guide and *The 386/486 PC: A Power User's Guide* which will answer any questions you have about technical aspects of the 386 (SX or DX hardware) and is written in an accessible style. Both are published by I/O Press (0969) 24402.

Q Motherboards for dummies?

In the August issue of *Practical PC* you suggested increasing the speed of a PC/XT by replacing the motherboard with a 386SX motherboard. Would this work on my PC5086? How does this compare with using Fast!4 software which claims to speed up the PC by as much as 700 per cent? The latter is approximately half the cost of the former and easy to install. If both are possible, which do you advise, and is the installing of a motherboard really within the scope of a computer dummy like me?

John Day, Kent

A Ah, another motherboard replacement question - it seems that the whole world is interested in motherboard replacements! The answer to your question is a little complicated. How fast you consider a machine to be depends not only on how fast the processor is but on other factors such as the disk drive and the video. If you form an overall measure of how fast a system is then it is possible to improve on this measure without actually speeding up the processor by increasing the efficiency of the disk drive, etc. This is exactly what Fast 4 does and, if you are interested in getting the best from your existing system it is a good investment. However it cannot change the type of processor in your system and a 386 has other advantages than just speed. Even on the issue of speed there is no question that a faster processor is more valuable than speeding up other aspects of the system.

As to whether or not a computer "dummy" can change a motherboard, I suppose it depends on how much of a dummy the dummy is. If you aren't happy about wiring a plug or changing a fuse then you would find replacing a motherboard a challenge. You need to be able to read and use a screw driver and that's about all.

Help Wanted

There are some question too difficult for even us to tackle! Perhaps you can help:

Q Where is Facit?

Can Facit printers still be bought. If so from whom and if not, can you tell me of anyone who might have info on a Facit 4512B printer?

W. Caulson, Northumberland

Q Olivetti keyboard

Can you tell me how to rewire an Olivetti PS/2 keyboard to link a standard 5-pin din socket on a 286 motherboard?

Bill Allison, Glasgow

Please send your answers and suggestions to Practical PC.

REVIEW
HARDWARE Q & A
SOFTWARE Q & A
LETTERS

SOFTWARE Q AND A

Q Driving a mouse

Recently I bought an Amstrad PC 5086 with single floppy 3.5" drive. It didn't have a mouse with it but the dealer gave me one. I then had a 40Mb hard disk fitted. I tried to run a program requiring a mouse but it won't run as it said "No Mouse Driver Detected".

What do I need to make the mouse work?

P. Downs, Stevenage

A As well as the mouse hardware - the bit that you push around the desktop - you also need a piece of software - a mouse driver - to make it work. You need to look on your hard disk, possibly on the original operating system disks, for a file called something like MOUSE.COM or MOUSE.SYS. If you find the MOUSE.COM form of the driver you can load it anytime by typing MOUSE at the MS-DOS prompt, as long as it is before you run any program that uses the mouse. If you find the MOUSE.SYS form of the driver you need to add the line DEVICE=MOUSE.SYS to the CONFIG.SYS file. You also need to make sure that the MOUSE.SYS file is in the root directory. If you cannot find a file called MOUSE. something or other then you cannot make use of the mouse unless the program that you are using can drive it directly. In other words, you need to talk to your dealer again and get hold of a driver.

Q Pound signs again!

I was prompted to write by your answer to Graham Millar in the November issue. Perhaps you could help me to sort out a similar problem in reverse. I have the ú sign above the 3 on my keyboard and it comes up on the monitor, but on my newly acquired Star L24-200 printer it just won't print anything but the hatch character (#).

I have a suspicion that the problem is due to my Wordstar 1512 processor (which I grant you is an antique) and perhaps the printer disc which came out with the program was an unmodified American version. If so, can I buy an updated printer disc (or version 5 copy of Wordstar) and cure this problem? Or have you a better solution?

H. E. Shilbach, West Sussex

Q I have recently purchased a Amstrad PPC512 which is also with an external monitor. It is attached to a OKI 192 printer via a standard parallel link. I use Locoscript PC for word processing.

I cannot get the printer to produce the ú sign. The keyboard will echo the ú sign to the monitor (LCD or attached external) but will not send it to the printer, it simply gives me a blank.

Alan Denison, Cambs

A The pound sign problem seems to be the greatest in all of computing - perhaps because American users don't have the problem! If you are seeing a pound sign on the screen when you press Shift and 3 it is unlikely to be anything to do with your software. Even if Wordstar 1512 is ancient (and a terrible word processor by today's standards) it will send the same character code to the printer as every other application ancient or modern. The problem, and hence the solution, lies in the printer. The Star printer can support a number of different character sets according to how a row of small (dip) switches are set. You need to look in the manual under the heading "Dip switch settings" and find out how to select either IBM character set 1 or 2 or the English character set. I can't be precise about which one you actually need because it depends on which version of MS-DOS you are using and how you have configured your machine. Rather than go into a long and involved explanation of how the PC handles international character sets (it would take about three pages) it is simpler for you to just try the three alternatives and see which one works!

Mr Denison's problem with the OKI printer is a bit more complicated because the of the way that the pound sign prints as a blank. This sometimes happens on older printers that support the pound sign in a slightly different way to the latest. They solved the problem by substituting a pound sign in place of the hatch character. Have a look at the manual and change the character set to UK or English by altering the dip switches inside. If you still cannot print a pound sign try printing something that has a hatch symbol showing on the screen with the UK character set selected. I think you will find that it prints as a pound sign. LocoScript can be customised to print any character on the screen as any character on the printer but this is an involved procedure. If this is the case I'd stick with typing hatches and printing pound signs!

Q Hercules and QBasic

Perhaps you could explain why the program that produces coloured ribbons (December issue of Practical PC) doesn't run. My machine is a 286 with a Hercules monochrome display and controller card.

R.S. Boyce, Scunthorpe

A *Oh dear, when I claimed that the ribbons program would run on any machine I must admit that I forgot about Hercules-only machines. The Hercules graphics standard has never been drawn into the IBM fold and so in many versions QBasic you couldn't make use of it. In the latest you can. The command SCREEN 1 at the start of the program selects the lowest resolution that is supported on all CGA, EGA, VGA and SVGA machines - but not on Hercules-only machines. To make the program work you need to use SCREEN 3 which selects one of the Hercules display card's high resolution graphics modes. However before this will work you also have to load MSHERC.COM before running Qbasic. The MSHERC.COM program is supplied as part of MS-DOS 5 so look in the DOS directory for it. The result will look very poor in monochrome though.*

For other readers who think they may be having problems, notice that as the program is random it doesn't produce exactly the same image each time and it is highly unlikely to produce the screen dump that illustrated the article - this is not a bug and the program is correct as printed.

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Commander Keen 2 CGA, Striker, Xonix, 3 Demon, Pharoah's Tomb, Ed's Chess, Digger, Cube, Fire & Ice, Omega war, Tornaks, Archery, Beast, Superz, Fusion, Pacman, Hopper, Space Invaders, Janitor Joe, Slowdown, Double Blocks, Popcorn, Q Bert, David's Kong, Dragons, Shrine of Kroz, Paratrooper, Zaxxon, Brainstorm, Encounter, Dam Busters, Command, Starship, Trivial Trek, Elevator, Columns, Blackbox, Round42, Gameboard, Pitfall, Spacewar, Dragons, Tank, Sopwith, Flightmare and Circus. These programs require a CGA, EGA or VGA monitor.

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Ford Simulator 1, Burger, Chernobyl, Galactic Conquest, Blastcga, Pinball Games 1, Willy the Worm, Mario Brothers, Tetris, motormen, Pango, Dui, Frogger, Ships, landmine, Oilwell, Caverns of Gink, Wheel of Fortune, Boa, Mainbreak, Busido, Romaz, stained Glass, Gapper, Kamakaze, Space Miner, Xetris, Boatwar, Brain Child, Conqueror, Darwin's Arena, Rimtrix, Stopsign, Artic Adventure, ZZT, The Object Oriented Game, Alfie and Tear Down the Wall. These programs require a EGA or VGA monitor.

SHAREWARE PACK 9 (Windows ATM Fonts 1) £20.00
This pack contains 134 fonts. They vary from reasonable to good and are mainly decorative. This pack requires Windows 3 and the Adobe Type Manager program.

SHAREWARE PACK 10 (Windows ATM Fonts 2) £14.00
This pack contains 94 fonts. They vary from reasonable to good and are mainly decorative. This pack requires Windows 3 and the Adobe Type Manager program. These are different fonts to Shareware Pack 9.

SHAREWARE PACK 11 (Windows True Type Fonts 1) £20.00
This pack contains about 130 True type fonts. They vary from reasonable to good and are mainly decorative. This pack requires Windows 3.1

SHAREWARE PACK 12 (Windows True Type Fonts 2) £14.00
This pack contains about 90 True Type fonts. They vary from reasonable to good and are mainly decorative. This pack requires Windows 3.1. These are different fonts to Shareware Pack 11.

SHAREWARE PACK 13 (Archivers) £11.00
This pack contains a large number of file and program archivers (compressors). There are also many utilites specific to archivers and also some source code. Includes: Lha; Pkzip,Pak; Zoo; Arj, Splint; Zoox; Zzap; Looz; Shez, Chunker; Zip-Kit 9; Arcmaster, Diet, Slim; Pkzmenu; Noah; Lhmenu; Lhasrc; Lhx; Sez; Okumura; Ziptv; Nabob; Lzexe; Unizexe; Compack; Pklite; Ozf; Recommend; Stripzip; Unzip; and Cvt

SHAREWARE PACK 14 (Apogee Games Collection) £17.00
This pack contains a collection of the best games from Apogee Software. Includes: Wolfenstein 3D; Cosmo's Cosmic Adventures, Word Rescue; Secret Agent; Duke Nukem 1; Commander Keen 1; Commander Keen 2; Commander Keen 3; and Crystal Caves. This pack requires EGA/VGA monitor for most of the games. Cosmo requires a 286 or better machine. Wolfenstein requires a 286 or better machine and a VGA monitor.

SHAREWARE PACK 15 (Windows True Type Fonts 3) £14.00
This pack contains about 90 True Type fonts. They vary from reasonable to good and are mainly decorative. This pack requires Windows 3.1. These are different fonts to Shareware Pack 11 & 12.

SHAREWARE PACK 16 (Windows Games) £11.00
This pack requires Windows 3 and contains over 45 games. Includes: Lucas; Brick; MB; Moku; Mr Mind; Taipai; Winpoker; Yacht; Alien F; Bang Bang; Klotz; Slot; Spacewar; Wordhai; Backgammon; Tsetse; Winchess; Winpente; Yahtzee; Arachnid; Biorythym; Blackout, Calculation Solitaire; Concentration; Roulette; Take One, Attaxx; Columns; Neko; Trails; Blackjack; Las Vegas Blackjack; Code Breaker; Cubic; Command; Plite; Triplets; Chomp; Second Conflict; Win-Adv; Scramble; Hangman; Match, Frocks; Search2; and Canfld. Also included are 3 replacement VGA video drivers.

SHAREWARE PACK 17 (KJV Bible) £15.00
This pack contains the complete KJV Bible text with a concordance search facility. It will work on all types of monitor but requires 4.5M of hard disk space. Both the DOS and Windows 3 version are included. The program comes from the USA and is called Seedmaster

SHAREWARE PACK 18 (Murders & Mystery) £10.00
This pack contains five great graphical adventure games for those with murder in mind. Includes: Hugo's House of Horrors; Hugo II - Whodunit? HUGO III- Jungle of Doom; Last Hall of Darkness; Dracula in London; These games require an EGA or VGA colour monitor and are highly graphical but do require some typing of words.

SHAREWARE PACK 19 (Junior Educational) £11.00
This pack contains many educational programs suitable for children from 5 years to 11 years old. Includes: Mathmaster, Dad's Choice. Math Practice; Memory; Save the Planet; Mathtest; Mom's Math; What's the Problem; Mighty Math; Animated Memory Game; Animated Math; and Anial Quest. The last 3 programs require an EGA or VGA monitor, the others require a CGA, EGA or VGA monitor.

SHAREWARE PACK 20 (Learn a Language) £12.00
If you want help on your French, Spanish, Italian, German, Chinese or Japanese then maybe this pack is for you. Includes: French Hangman, French Tutor, French Assistant; German Tutor, Italian Tutor, Spanish Hangman, Spanish Tutor 1; Spanish Tutor 2; Spanish for Travellers; Chinese; Chinese Flashcards; Cantonese; Japanese, Translator Dictonaries. All these programs require a CGA, EGA or VGA monitor.

SHAREWARE PACK 21 (A Windfall of Windows) £16.00
This pack has over 80 different utilities, games, fonts, educational programs, etc. All these programs require Windows 3 (some will require Windows 3.1). There are too many to mention here but you will not be disappointed.

SHAREWARE PACK 22 (DOS Tutors) £12.00
This is a collection of DOS tutors, reference text files and utilities ranging from the very simple to the extremely hard. Includes: Tutor DOS; PC Prompt; Tutor Com; Dos Help; GCSE Computers; Dos Practice; Dos Manual; Quikhelp; File Ext; Help Dos; Dos Summary, Dosea - Absolute Beginners; Dosea for MSDos 5, and Dosea 6.

SHAREWARE PACK 23 (Super EGA Games) £11.00
This is a collection of 8 games for colour EGA or VGA monitors. It consists of: Jill of the Jungle; Mike Rock 1; Lavacap; Kiloblaster; The Orion Odessey; Soltile; Ladder Man; and Keen Dreams

SHAREWARE PACK 24 (Great EGA Games) £11.00
This is a collection of 13 games for colour EGA or VGA monitors. It consists of: Crusher; Green; Catacomb Abyss; World Empire; EgaTrek; Intra Galactic Battles; Oilcap; Dodgem; Robomaze 3; Tile Match; Kalaha; Leong; and Palanda.

SHAREWARE PACK 25 (VGA Games) £11.00
This is a collection of 7 games for colour VGA monitors. It consists of: Death Watch; Capture the Flag; Corncob 3D; Doublink; Galactix; Moraff's Escapade; and Phylox.

Information sheets on packs 9, 10, 11, 12, 15 and 21 are available. Please ask for details.

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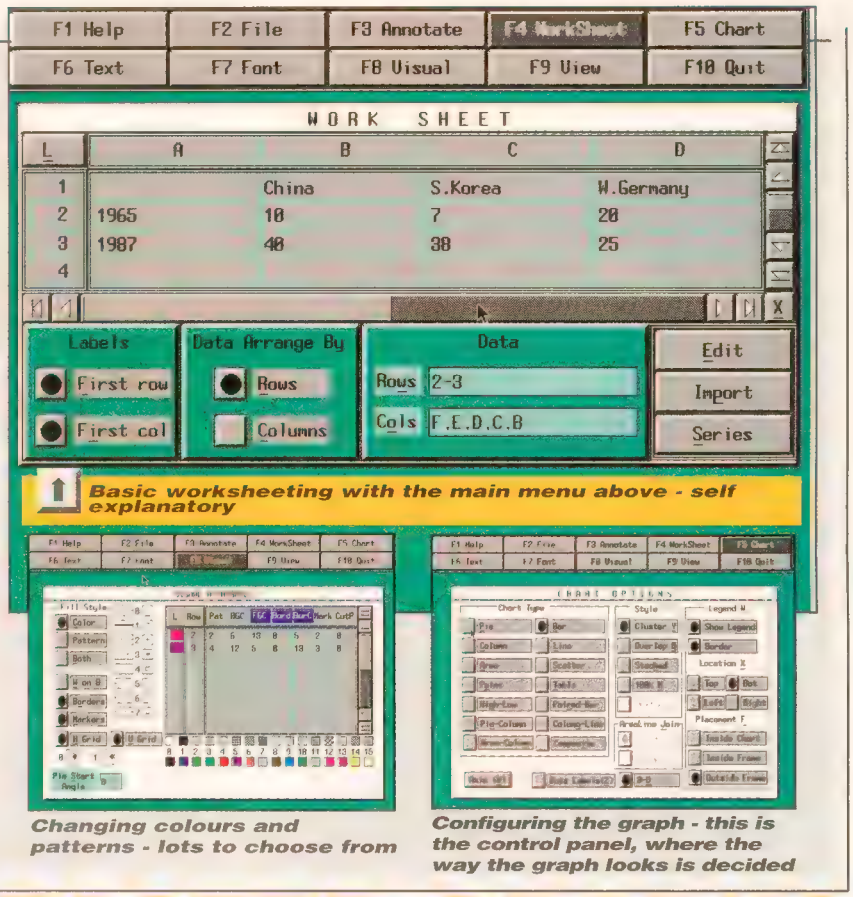
FASTER GRAPHS

They say a picture paints a thousand words, an old saying that rings very true when it comes to understanding figures. Output from a spreadsheet has always confused the recipient - if you didn't construct the sheet, the chances are you may not understand the full implications of the figures contained thereon. However, a bar chart showing how one salesman has done compared with another gives you the picture immediately - it's why we use the PC-ometer in our hardware reviews.



Basic worksheeting with the main menu above - self explanatory

Changing colours and patterns - lots to choose from

Configuring the graph - this is the control panel, where the way the graph looks is decided

High end spreadsheet packages - like Excel and Lotus 123 and their ilk - have all got their own graphing modules built in, but to use an expensive and powerful package like one of them to graph some simple data is tantamount to taking a sledgehammer to crack a walnut. There's also the point that not all numeric data is produced in spreadsheet programs. Databases can, and do, produce numeric data, as do lots of other types of packages. But they don't often have a graphing facility. Enter QuickGraph Plus, (QG+) from Sumak Enterprises Inc., a low-cost (very low-cost) package that takes over the task of providing graphical information from chunks of figures.

QG+ is a DOS package which is far from lavishly presented, arriving shrink-wrapped with its manual and two 5.25" disk without the fancy box. Fancy packaging, however, does not a capable program make, to twist an old saying, and QG+ proves that admirably, up to a point.

To begin with, it takes up around 3 megabytes of hard disk space - this is not an application to be run from floppy disks - a decent chunk of which is taken up by a selection of Agfa Compugraphics Intellifonts, the same font type used by the HP LaserJet III.

Strangely, as QG+ starts, you are given the opportunity to change the display type and mouse, should you so desire, but if you do nothing for a few seconds, the program carries on. The choice of graphics adaptor type is not too limited, but the use of said adapters is a little restricted - there are no 256 colour modes available, for instance, or resolutions higher than 640x480, which is perhaps a little surprising.

Pressing on, you come to the main screen, which is a graphical user interface as you will find, complete with 3D buttons and dialogue boxes galore. It is, I have to say, extremely intuitive to use, and you'll find yourself constructing sophisticated graphs within minutes, and all without reference to the manual.

There are 44 different types of graph available to the user, going from simple bar and pie charts to high-low stock movement charts and 3D variations thereof - everything other than pictographs, which was one facility I was hoping to find in the package. There are options aplenty to play with, including colour palettes, patterns, viewing angle for 3D graph types and so forth. There's enough here to keep the tinkerer amused for hours on end, massaging a graph until he's completely satisfied.

Getting the data into the graph is also comprehensively catered for. You can either use QG+'s inbuilt worksheet facility - a mini spreadsheet without the sophisticated functions - or import data in a variety of formats from another application. Obviously, the standard spreadsheet file formats are represented, plus the standard interchange formats. Again, almost everything about the import file can be configured and massaged, which means that there won't be much data you can't import.

In fact, this ability to configure just about everything in the program is one of its major plus points. If you want to change something, the chances are you can, but that doesn't mean that you have to. If you just want to get on and construct a graph without worrying about fiddly details, you can do that too, and very easily.

Once the graph - or a number of graphs - has been created a slide show program allows you to display them onscreen as a presentation. Alternatively, you may wish to import the graph into a word-processing package, in which case you can save a graph as a .PCX, .TIF, .WPG, .PIX or .WBM file for just that purpose. It seems there's not a lot Sumak hasn't thought of.

QuickGraph Plus is quite an impressive package. It offers a great amount of flexibility, if that is required, or a speedy way to construct graphs from data acquired in a wide variety of ways. Its configurability means there's something there for everyone. It's no Harvard Graphics, but it was never meant to be, and anyway, at £79.95, no-one could expect it to be a high-end package. That said, it's not that far away, and if, as I understand will be the case, a future release incorporates pictograms as well, there won't be much more you could ask of it.

FAX BOX

- **Product:** QuickGraph Plus
- **Price:** £79.95 + VAT
- **Publisher:** Sumak Enterprises
- **Tel:** 0752 606200

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Versatility 80

Speed 90

Verdict 80

✓ Quick and easy to use, versatile

✗ No pictograms

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Adding a Fax/Modem

Now is a good time to add a fax/modem card to your machine. The reason being that technology is, at last, well enough developed to mean that low-cost cards work well. Unfortunately communications (comms, as a techie would refer to it) has never been a straightforward topic. It's been getting better though and, as long as you are prepared to read and understand a little of how it all works, then you should find it relatively easy to fit and use your own fax/modem card.

The first question is what exactly is a fax/modem and why should you want one? A fax/modem card can be used, with the help of suitable software to send and receive faxes and to log on to bulletin boards and information services. Faxes are sent directly from word processors and other applications without having to be printed out. Received faxes can be stored on disk, viewed on the screen and/or printed out. How useful the fax facility is depends on other factors such as how much disk storage you have available, and how good a printer you have. You cannot send a paper document unless you also invest in a scanner of some kind.

Even if you already have a modem, an up-to-date fax/modem card may still be a good investment. Until quite recently, reasonably priced modems only worked at 2400 baud (240 characters per second) or less. Currently fax modems costing around £200 work at 9600 baud (960 characters per second) or faster. If you transfer much data using telephone lines then the cost savings will quickly repay the outlay.

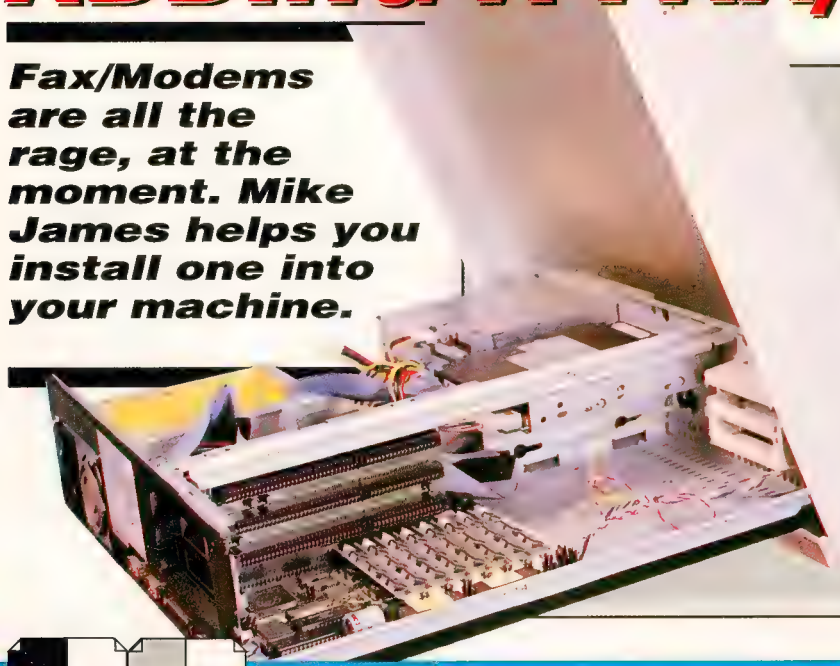
When you choose your fax/modem the main thing to make sure of it is that it is a V32/V32bis and V42 modem. These magic numbers ensure that your modem is capable of working as fast as is currently reasonable. You should also take into account any software that is included in the price. You will certainly need a fax/communications package to actually make use of the card.

The only difficulty that you will encounter in installation is working out which serial port the card should be set to. An internal fax/modem card is a serial port as far as the hardware side of you computer is concerned. A standard PC can have two serial ports, COM1 and COM2, and these days this has been extended to COM3 and COM4, although these two additional ports are still a little non-standard with all but the latest programs. The difficulty is that most computers already have COM1 and often COM2. The reason is that serial mice need a serial port and many multifunction interface cards have one or two serial ports as standard. If you are not using any of the standard serial ports installed on your machine then it might be worth discovering how to disable either COM1 or COM2 so that the fax/modem card can be set to use one of them. What is vital is that you set the fax/modem to use one of COM1, COM2, COM3 or COM4 and that no other serial card in your machine uses the same port.

Once you have your fax/modem installed you should be able to start putting it to good use almost at once. The only possible problems are if you have to use a line provided by an internal company switchboard. In this case it might be advisable to get BT to fit a direct outside line.

STEP BY STEP ADDING A FAX/MODEM CARD

Fax/Modems are all the rage, at the moment. Mike James helps you install one into your machine.



STEP 1 *The first job in fitting any new card is to remove the cover. The machine being upgraded is a Tatung 386SX and it has a cover that lifts off. Some desktop cases slide off and tower cases usually have a side panel that pulls off. When you remove the cover be careful to notice any wires attached to front panel buttons etc. If you have to disconnect such wires make a note of where each one comes from. Once inside take a look around and discover the expansion area. This is where additional adaptor cards such as a fax/modem have to be plugged in.*

Twincom

Model	Price	PC Internal	External Desktop	External Portable	V32.bis	V32	V22.bis	V23	MNP 5	V42.bis	V42	Fax Send	Fax Receive	FCC Approval	BABT Approval	Max Throughput
14.4/DFe	£299		✓		✓	✓	✓		✓	✓	✓	14400	14400	✓		57600
14.4/DFi	£289	✓			✓	✓	✓		✓	✓	✓	14400	14400	✓		57600
24/96e	£109		✓				✓		✓	✓	✓	9600	4800	✓		9600
24/96i	£99	✓					✓					9600	9600	✓		2400
ACI/550	£69	Highspeed Interface Card. Two 16550 UARTs, one 9 pin & one 25 pin serial port														

SmartLink

Model	Price	PC Internal	External Desktop	External Portable	V32.bis	V32	V22.bis	V23	MNP 5	V42.bis	V42	Fax Send	Fax Receive	FCC Approval	BABT Approval	Max Throughput
V32.bis/Fax	£509		✓		✓	✓	✓	✓	✓	✓	✓	9600	9600		✓	57600
V32.bis Modem	£439		✓		✓	✓	✓	✓	✓	✓	✓				✓	57600
V32 Modem	£299	✓				✓	✓	✓	✓	✓	✓				✓	38000
Quad/Fax	£299		✓				✓	✓	✓	✓	✓	9600	9600		✓	9600
Quad Modem	£219		✓				✓	✓	✓	✓	✓				✓	9600
E4/Fax	£269	✓					✓	✓	✓	✓	✓	9600	9600		✓	9600
E4 Modem	£219	✓					✓	✓	✓	✓	✓				✓	9600
Pocket Fax/Modem	£199			✓			✓		✓	✓	✓	9600	4800		✓	9600
Fax Gate (for Networks)	£219	✓										9600	9600		✓	

● All SmartLink Products are BABT Approved ●

GRANITE

Model	Price	PC Internal	External Desktop	External Portable	V32.bis	V32	V22.bis	V23	MNP 5	V42.bis	V42	Fax Send	Fax Receive	FCC Approval	BABT Approval	Max Throughput
14.4/DFe	£299		✓		✓	✓	✓		✓	✓	✓	14400	14400	✓		57600
14.4/DFi	£249	✓			✓	✓	✓		✓	✓	✓	14400	14400	✓		38400
14.4/Pocket	£399			✓	✓	✓	✓		✓	✓	✓	9600	9600	✓		57600
24/96 Pocket DeLuxe	£139			✓			✓		✓	✓	✓	9600	9600	✓		9600
24/96 Pocket Standard	£99			✓			✓		S		S	9600	9600	✓		4800
24/96 Internal DeLuxe	£129	✓					✓		✓	✓	✓	9600	9600	✓		9600
24/96 Internal Standard	£89	✓					✓		S		S	9600	9600	✓		4800
24/00 External Modem	£89		✓				✓		S		S			✓		4800
24/00 Internal Modem	£59	✓					✓		S		S			✓		4800
14.4/Modem	£399		✓		✓	✓	✓	✓	✓	✓	✓				✓	57600
Autofax/External	£199		✓				✓		✓	✓	✓	9600	4800		✓	9600
Autofax/Internal	£199	✓					✓		✓	✓	✓	9600	4800		✓	9600
Autofax/Pocket	£199			✓			✓		✓	✓	✓	9600	4800		✓	9600
96/24/Internal	£89	✓					✓		✓	✓	✓	9600	4800	✓		9600
Toshiba Fax/Modem	£199	✓					✓		✓	✓	✓	9600	4800	✓		9600
Miracom DS+ (HST)	£549		✓		✓	✓	✓	✓	✓	✓	✓				✓	19200

V23 = 1200 75bps, V21 = 300bps, V22 = 1200bps, V22 bis = 2400bps, V32 = 9600bps, V32 bis = 14,400bps, MNP 4 = error correction, MNP 5 = 2/1 data compression, V42 = CCITT error correction, V42 bis = 4:1 CCITT data compression. All modems V21/V22/Bell 212/Bell 103, Hayes compatible, auto answer, auto dial (pulse and tone) and have monitor speaker. S = Software error correction. Our non BABT approved units are designed for international use, including the UK. All modems supplied with RJ11/BT lead.

Software

QuickLink for DOS	£19	Fax & Modem Software for DOS
QuickLink for Windows	£19	Fax & Modem Software for Windows
QuickLink for Apple Macintosh	£25	Fax & Modem Software. Includes serial cable
QuickLink Gold (OCR)	£79	Windows 3 Fax & Modem Software. **Includes OCR Software**
HotFax for DOS	£99	Brilliant Fax & Modem Software for DOS. Includes ZModem
Eclipse Fax for Windows	£99	Windows 3 Fax Software. Much faster than WinFax Pro
Network Fax	£149	DOS & Windows Network Fax Software
Network Modem	£149	DOS Network Modem Software
Netware Lite	£49	Novell Netware Lite. Includes DR-DOS 6

Peripherals

NE2000 Compatible, 16 bit Network Cards	£69	Sound Blaster Compatible Cards	£99
Fax Splitters (BABT Approved)	£79	Goldstar External CD-ROM	£199

PROHIBITED from direct or indirect connection to public telecommunication systems. Action may be taken against anyone reconnecting this apparatus.

All Fax/Modems include DOS and Windows 3 Fax and Modem Software. All modems include DOS Software.

APPROVED for connection to telecommunication systems specified in the instructions for use subject to the conditions set out in them.

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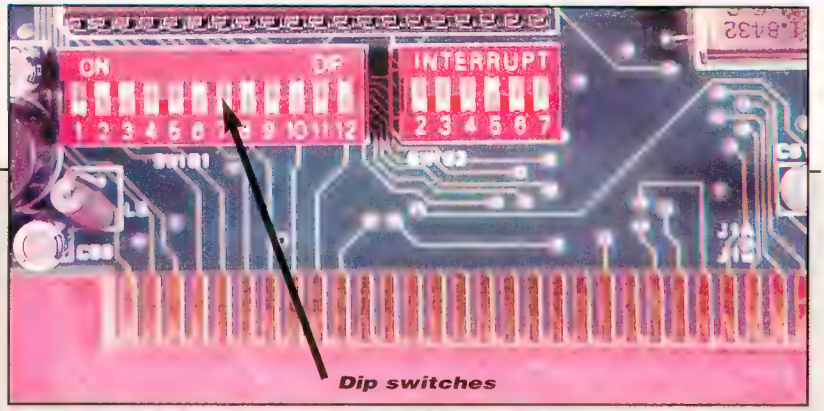
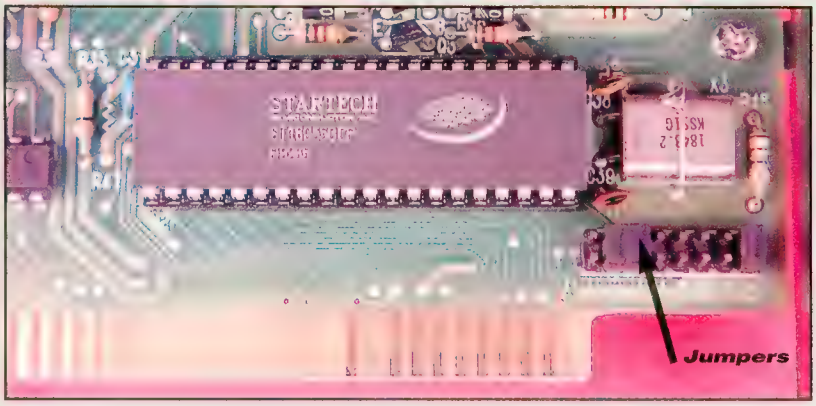
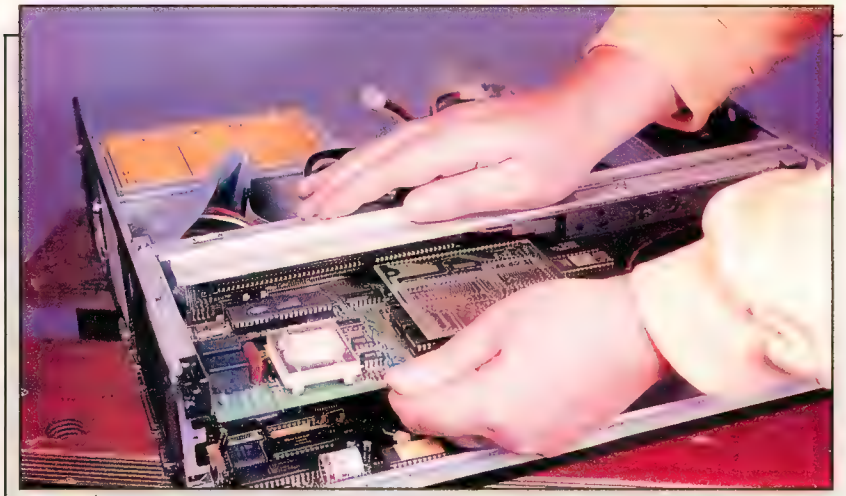
Adding a Fax/Modem





STEP 2 *Before you can insert the card into your system you have to set either a block of dip switches or jumpers to set the card's identity as COM1, COM2, COM3 or COM4. You have to make sure that no other card or built-in hardware is already using the COM port that you set the fax/modem to. In many cases the fax/modem will have a simple arrangement of dip switches/jumpers that allow you to select the COM port number. In other cases you will have to set a complex looking set of switches to the port address and interrupt number that corresponds to the COM port. For example, COM1 corresponds to address 3F8-3FF and IRQ4. Don't worry there is always a table in the manual that tells you how to set the switches for each COM port.*



STEP 3 *You next have to choose a free slot and remove the blanking plate at the rear. The blanking plate is no longer needed because the fax/modem cards phone connection sockets will appear in its place - but you do need the screw that held it in place. You also need to keep the blanking plate in case you remove the fax/modem at a later date. After choosing a free slot, inserting the board is just a matter of lining it up and pushing with an even pressure. The Tatung machine shown here has a set of horizontal slots and this is an increasing common arrangement. Older and larger machines have vertically mounted expansion cards. Use the screw to secure the card in place.*

STEP 4 *At this stage you can replace the cover and connect up the fax/modem to the telephone line. You need to run a single cable to the phone socket and if you want to plug a handset into the fax/modem card. If you do plug a handset in you can use the line to make out going calls and even answer the phone manually when you know it isn't a fax coming in.*

STEP 5 *The final step is something that you will be tinkering with for most of the time that you use the fax/modem - setting up the software. You have to first install the software. This isn't difficult as long as you remember which COM port the card was set to and can identify the card as one of the standard fax/modem cards on the market. In this respect it is slightly easier if you use software supplied with the card because then the instructions will be specific to the hardware that you have bought. However some of the best fax/modem software isn't usually bundled with hardware. Once you have the basic installation complete you find that adding facilities such as letter headings for word processed documents and maintaining your personal online phone directory means that the system is ever changing.*

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305	**YOGI** Excellent! EGA/VGA Yogi Bear maths game	1
306	**AMY'S FIRST PRIMER V1.7** Pre-school educational games	1
307	**WORD GALLERY V3.0** Word association for kids	1
308	**WP FOR KIDS** Simple word processor for the young	1
310	**ABC FUN KEYS V4.12A** Game to learn letters, numbers	1
311	**HOORAY FOR HENRIETTA VGA** New Version, with Soundblaster support	1
312	**HENRIETTA'S BOOK OF SPELLS VGA** Very popular educational games	1
313	**WHERE'S THAT MOUSE** Interactive story for the young, Nice!	1
314	**ANIMATED SHAPES** Teaches counting, addition & subtraction EGA/VGA	1
315	**ANIMATED WORDS** With digitized sound samples, EGA/VGA	2
316	**ABC-TALK V2.4** Real human voice to teach the alphabet, spelling	1
317	**PLAY 'N' LEARN** Intended tointroduce children to computers	1
318	**MONKEY BUSINESS**More interactive fun for the young. Good	1

No.	GRAPHICS & ART	Disks
351	**DRAFT CHOICE V2.0** Fast object based graphics tool, New Version!	1
352	**DESKTOP PAINT** Commercial quality painting program, Excellent!	1
353	**FINGERPAINT V4.0** Very good drawing program, saves in PCX	1
354	**PC-DRAFT CAD V3.06F** Excellent drawing / drafting package	1
357	**IMAGE GALLERY V1.0** Helps keep track of bitmapped image files New	1
358	**VGA CAD V2.51** Great VGA Drawing/CAD/Paint package	3
359	**VGA PAINT V1.1** Excellent VGA graphics/drawing program	1
360	**PAINTERS APPRENTICE** Like PC Paintbrush, DR. Halo, etc	1
361	**TSQUARE V2.3** Truly professional CAD package	4
362	**PC-DRAFT II V3.26** Simple easy to use graphics package	1
363	**TURBO PAINT V1.5** Alternative to PC-Paintbrush, Deluxe Paint	1
364	**EASY PRESENTATION GRAPHICS V2.04** Charts & graphs	3
365	**GRAPHICS WORKSHOP V6.1** Scale, convert, view any graphic type	1
367	**PCX SUPERSHOW** Create customised screen presentations, excellent	2
369	**FLOWDRAW V2.2** Draw / flow / system / electric charts	2
370	**GIF PICS** Large collection of GIF's to start your collection	5
371	**GIF UTILS** Superb utilities for use with GIF pictures, a must!	2
372	**PCX CLIP-ART** An mals, Automobiles, Birds, Dogs, Cartoons, Frames Computer Related, Fantasy, Figures, Holiday, Humour, Office/Business Religion, Santa Claus, Medical/Science, Food, One Subject Per Disk!	
373	**CLIP-ART** Very large collection of miscellaneous PCX Clip-Art	4
374	**SMARTART CLIP-ART III** 130 images from The SmartArt Library	1
375	**FRACTINT V17.2** Fantastic fractal graphics program, Latest!	1
376	**.FLI ANIMATIONS** Animations that will amaze you, includes Player	3
377	**PRINTPARTNER GRAPHICS** Large collection of add in graphics	4
378	**EGA/VGA DEMO'S** Collection of programs to show off your graphics	3

No.	HOBBIES & PASTIMES	Disks
401	**COLLECT! V2.0** Track anything collectable	1
402	**FOOTBALL FORECAST V3.7** UK football pools prediction, Latest!	1
403	**MOVIE DATABASE** Information on 4000 plus Movies	1
405	**COMPUTER CHEF** Up to 2,340 recipes. Many features	1
406	**EDNA'S COOK BOOK V1.25** Excellent cookbook program	1
407	**FRED'S RECIPES** 3 500 recipes for Edna's cook book above	4
408	**ASTROMART V2.11** Astrology for personal or professionals	1
409	**SKYGLOBE V3.5** Very powerful star plotting system New Version!	1
410	**ASTRO** Astrological analysis program	2
411	**BROTHERS KEEPER V5.0E** The ultimate Genealogy program, Latest!	4
412	**CROSSWORD CREATOR V4.3** Create & print crosswords	1
413	**TREES II** Complete Genealogy program. Good. New Version!	1
417	**CUMBERLAND TREE V3.3** Easy to use family tree program.	1
418	**FAMILY TREE JOURNAL V9.0** Complete Genealogy program	3
419	**TRACKBLASTER V2.0** Play Amiga MOD music files on Soundblaster	1
420	**TRACKBLASTER FILES** Lots of music/sound files for above	3
421	**SOUNDBLASTER UTILS/MUSIC** Large collection of utils & .VOC files	3
422	**ADLIB UTILS/MUSIC** Large collection of utils & ROL files	3
423	**ONLINE BIBLE V6.0** The ultimate Bible program, very latest!	22

No.	LEISURE/GAMES - EGA/VGA GAMES	Disks
451	**WOLFENSTEIN 3D** Virtual Reality Game, VGA	2
452	**COMMANDER KEEN** Invasion of the vorticons	1
453	**COMMANDER KEEN II** Goodbye Galaxy, CGA Version Available	1
454	**COMMANDER KEEN III** Aliens ate my baby sitter	1
455	**DUKE NUKEM** Stop Dr Proton from ruling the world	1
456	**DARK AGES** With support for Adlib/Sound Blaster cards	1
457	**CRYSTAL CAVES** Cave after cave of adventure	1
458	**SECRET AGENT**	1
459	**WORD RESCUE**	1
460	**PAGANITZU**	1
464	**COSMO'S COSMIC ADVENTURE** Brill Cosmic adventure	1
465	**JILL OF THE JUNGLE** Guide Jill through 16 huge scrolling levels	1
466	**KILOBLASTER** Fast-action arcade game reminiscent of Galaxian, New!	1
467	**MAHJONG V3.5** Fantastic! tile game, EGA	1
468	**TILES** 35 tile set for above from Nels Anderson	1
469	**KUNG FU LOUIE** Excellent Martial Arts game	3
470	**EGATREK & CIPHER** Space strategy game . Word Puzzle game	1
471	**TILE MATCH** Colourful EGA/VGA concentration solitaire game	1
472	**SHOOTING GALLERY V2.3** Superb fairground-style shooting game, VGA	1
473	**HUGO** (Hugo s House of Horrors!)	1
474	**HUGO II** (WhoDunIt)	1
475	**HUGO III** (Jungle of Doom)	2
480	**GALACTIX** Fantastic, stunning shoot-em-up, speech etc, VGA	2
481	**CAPTAIN COMIC V5.0** Now uses a joystick EGA	1
482	**CADDIEHACK EGA GOLF** 18 holes at Pompano, Excellent!	1
483	**ORION** Arcade game, Captain Comic type action, EGA	1
484	**ROBOMAZE II & II** The Lobby & The Dome, Fast action	1
485	**LAST HALF OF DARKNESS** Super adventure game with real speech! VGA	2
486	**VGA JIGSAW PUZZLE** Wonderful VGA graphics puzzle game	1
487	**FORD SIMULATOR III** Test drive a Ford, 1992 models, Excellent! VGA	4
488	**SFS** Space flight simulator, CGA/HGC/EGA/VGA	1
489	**EGA GAMES COLLECTION 1** Nice collection of games for EGA/VGA	3
490	**VGA GAMES COLLECTION 1** Large collection of games for VGA cards	3
491	**MORAFF'S GAMES** Complete Moraff's games collection, Excellent!	2
492	**CHRISTMAS LEMMINGS** Playable Christmas demo of this superb game	1
493	**BASSTOUR V4.5** The ultimate fishing tournament game	1

No.	SPREADSHEETS	Disks
501	**AS-EASY-AS V5.01B** Very latest UK version of this 1-2-3 clone	1
502	**PIVOT! V2.0** Print spreadsheets in portrait or landscape	1
503	**INSTANTCALC V3.0** State of the art spreadsheet, powerful	1
504	**PC-CALC+ V2** Powerful, feature packed from Buttonware	3

No.	UTILITIES	Disks
551	**McAFEE VIRUS TOOLS 8.5V93** Scan, Clean-up, Virus Shield, etc	2
552	**VIRUS CENTRAL V3.0** Menu driven front-end for above	1
553	**INTEGRITY MASTER V1.23A** Virus detection & prevention, Good!	1
554	**BLANK-IT V5.1A** Professional screen saver, Major new update	1
555	**INFO PLUS** 18 screens of information about your system	1
556	**POWERMENU PLUS V6** Powerful easy to use menu system	2
557	**FAST MENU V6.0** Graphical menu system, CGA to VGA	2
558	**COPYMASTER V1.13** Make back-ups of your commercial programs	1
560	**DISK COMMANDO V2.10** Norton Advanced Utilities clone	1
562	**FLEXIBAK PLUS** Hard disk back-up the easy way	1
563	**4DOS V4.0** Latest version of this DOS enhancer	2

No.		
565	**TUTOR DOS** Interactive MS-DOS tutorial, one of the best	4
566	**PKZIP/PKUNZIP V1.1** Worlds most used file compressor	1
567	**PKLITE V1.13/LZEXE V0.91** Real time file compression	1
568	**PKZMENU V1.04** Nice front-end for PKZIP/PKUNZIP	1
569	**SYSTEM 76** This is a cross between PCTools V6 & PowerMenu, New!	2
570	**ARJ V2.39** Excellent file compression program, New Version!	1
572	**FILE COMMANDO II V2.1** PC-Tools clone, Excellent	1
573	**ONSIDE V2.0** Sideways printing on your PC-compatible printer, Latest!	1
574	**BRADFORD V2.04** NLQ & 40 different fonts for dot matrix printers	1
575	**AUTOMENU V4.7** Excellent shareware menu system	1
576	**BENCHMARK** PC-Magazine benchmark program V6.0, New Version!	3
579	**DOS UTILS V4.4** File-man, Dos shell, Menus, Disk tools, TSR pop-ups	1
580	**UTILITIES** Essential collection of utilities	2
581	**BATCH UTILS** Large collection for use with batch files	1
583	**ARCMASTER V7.3** Front-end/convert system for ARC/ARJ/LZH/ZIP files	1

No.	WORDPROCESSING	Disks
601	**GALAXY V2.43** Excellent easy to use, Wordstar compatible	1
602	**MINDREADER V2.0** Intelligent word processor, Very Good	1
603	**MULTI-LINGUAL WP V1.2A** Word process in many languages	1
604	**PC-WRITE V3.05** Latest version of this excellent WP	3
606	**WORD FUGUE V3.0** Full featured with pull down menus	3
607	**PC-WRITE STANDARD LEVEL V2.01** With UK spelling checker, New!	4
608	**PC-TYPE 4** Nice word processor from Buttonware	4
609	**JORJ DICTIONARY V4.3** English dictionary, 55,000 words	2
610	**THESAURUS PLUS V2.2** Ideal for those spelling problems	1
611	**MULTIWORD** Pop-up electronic thesaurus, Excellent!	1
612	**NOVA** Powerful word processor with pull-down menus	1
614	**SHARESPELL V2.3** Text file spelling checker	1
615	**PRINTPARTNER V2.0** Create Signs/Banners etc, New Version!	1
616	**SIGN SMITH** Letterheads and posters in many fonts	1
617	**WP-TOOLS** WordPerfect utilities/macro/fonts	1

No.	WINDOWS PROGRAMS - Available on 3.5" disks only!	Disks
651	**PAINT SHOP PRO** Easy to use image converter/editor/screen capture	1
652	**PC-PROJECT V3.0** Project management, GANNT charts	1
653	**ICONS** One Thousand & Eight hundred Icons in 50 categories	1
654	**ICON TOOLS** The ultimate collection of Icon Tools, Superb	1
655	**ALMANAC V3.0C** Calendar for windows	1
656	**ACTIVE LIFE V1.5** Scheduler, calendar etc	1
657	**CLIP ART** Assorted clip-art in .BMP format	4
658	**COMMAND POST V7.2D** Very latest version	1
659	**EZ-FORMASTER** Wysiwyg forms for windows, Very Nice!	1
660	**HYPERDISK V4.21** Hyperdisk cache for windows/applications	1
661	**NAVIGATOR V3.0.62** Lotus Magellan, Beware!	1
663	**PIXFOLIO V1.0** W ndows Image Viewer and Catalog Manager	1
664	**GRAPHICS WORKSHOP** Windows version of this super graphics prog	1
665	**WALLPAPER** Wallpaper for windows, Assorted .BMPs	4
666	**WINCHECK V3.0** Graphical, Super nice checkbook	1
667	**FRACTINT V17.2** Latest with many new features, Latest version!	1
668	**WINTREK** Windows alien destruction game	1
670	**CASTLE OF THE WINDS** Superb fantasy role playing game	1
671	**GNU CHESS V3.21** Superb chess game for windows, many features	1
672	**WINDOWS GAMES** Collection of superior windows games	4
673	**FILE-COMMANDER V1.0N** File manager extender for windows	1
674	**WINSPELL V2.01** Spelling checker, works in any window	1
675	**WOOP IT UP!** Terrific new sound utility for windows, New!	1
676	**YAKKITY CLOCK V1.0** Powerful, easy to use talking Clock, New!	1
677	**SMART ACCOUNTS V1.2** Windows UK accounting package	1
678	**ATM FONTS** Volumes 1 to 10 (4 disks per volume)	4
679	**TRUE TYPE FONTS** Volumes 1 to 10 (4 disks per volume)	4
680	**ARCHIVES V3.08** Pkzip/Pkunzip front-ends for windows	1
681	**FRONTWINDOW V2.0** Very sophisticated file manager	1
682	**WINDOWS UTILITIES** A collection of some of the very best!	3
683	**SCREEN PEACE V1.2** Excellent, multi-featured screen saver	1
684	**SOUND RECORDER V2.2** A .VOC file player/recorder for soundblaster	1
685	**ABOVE & BEYOND! V1.0** Super commercial quality scheduler	1
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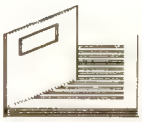

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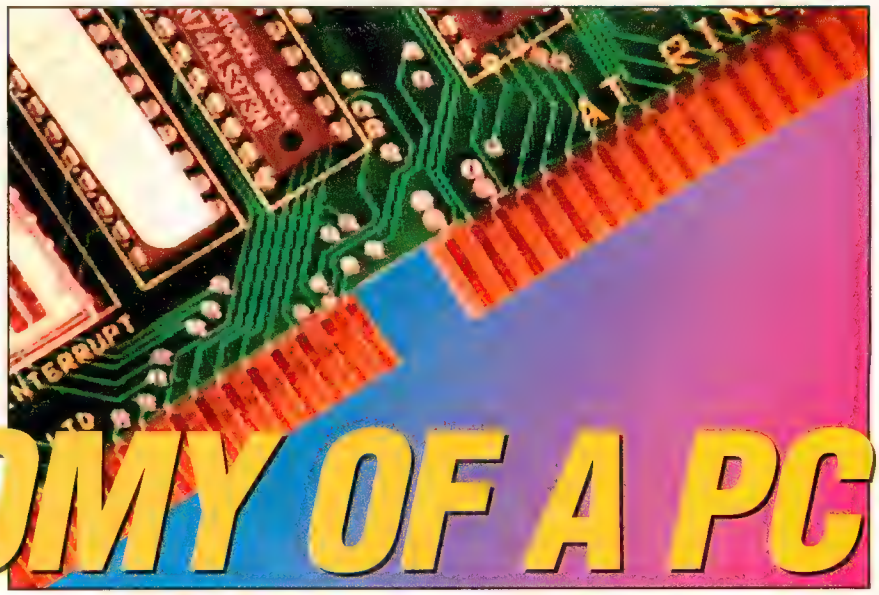
Expansion Bus Technology

The essence of the PC is its open architecture - you can buy what amounts to a bog standard box and dedicate it to almost any task you care to mention, using all sorts of hardware. This is because its is, by design, expandable. Whenever you read the blurb about a new machine, you'll see "with 7 slots free", "5 free slots" "Fast EISA bus" - but there's often more to it than just jiggling a card in an edge connector!



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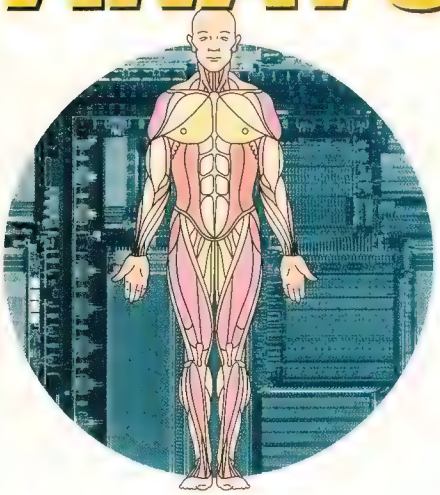

Expansion cards fit into your PC via expansion slots to add new capabilities to the machine. David Dorn charts the variations

Delving back in history to 1981, when the PC first saw the light of day, expansion was an element in the design that, perhaps, did not hold quite the significance it does today. IBM, undoubtedly, had planned for users to have the ability to increase the functionality of their machines by adding specialist circuitry, and had included expansion slots just for this purpose.

At that time, the path leading from processor to slot (the bus) was configured along similar lines to a parallel printer conector - it was what is known as an eight-bit bus. That is to say that eight separate data signals could be transmitted along it simultaneously. This level of bus is now usually referred to as an XT bus, since it's rare to find an eight-bit bus in 286 or higher machines.

The bus carried not only the eight data signal paths but also a complex array of control signal paths as well, and also included power-carrying circuitry. The configuration of this bus remained constant, even in clone machines, meaning that expansion cards would work in any IBM PC compatible. Those, as they say, were the easy days.

In order for expansion cards to work - and the term at that time included serial ports, parallel ports, graphics/display cards, hard and floppy disk controllers, all the stuff that we often see built into the motherboard these days - each had to be unique according to certain criteria. Which is where we get a little technical, but bear with it for a while - it will be worth it!

There are four main areas in which an XT bus expansion card must differ from its neighbours. These are its Interrupt number, its DMA channel (if any), its Base I/O port and its Base Memory address.

Interrupts

The IBM PC and XT allowed for eight interrupt request levels, numbered from 0 to 7, with level 0 having priority. Generally, these are referred to as 'IRQ' numbers. As the name implies, interrupts exist so that the main processor can be interrupted by another software process for whatever purposes it has in mind. This was forward thinking on the part of the designers, because, if you can hark back to 1981, no-one had any notion that the IBM PC would later be fitted with a hard disk, yet, because of the interrupt-driven nature of the hardware, any PC can accept a hard drive.

Certain interrupt numbers have standard uses - see the XT interrupts table - while others are more variable. Whether there are any interrupts unassigned in an XT computer depends entirely on what is fitted to it - the standard equipment we see on current computers leaves very few free interrupt assignments on an XT machine. By the time you have floppy disks, two serial ports, and a parallel port fitted, the only interrupts left free are 5 and 2.

There are some compensations, though. The general notion of IRQ is that the device or process requiring processor time initiates the signal to interrupt the central processor. 99 per cent of the time, parallel ports and the devices that connect to them do not - and cannot - generate interrupts, and their interrupt numbers can therefore be utilised for other purposes. The one per cent consists of PCs fitted with bi-directional parallel ports, which you would normally associate with scanners.

DMA

Direct Memory Access channels allow for peripheral devices to transfer data from themselves to memory without involving the central processor. The XT bus maintains four DMA channels, numbered 0 to 3, whilst the AT bus has eight in total.

Add-in cards which use DMA include network cards, some scanner cards, sound cards, disk controllers - in fact any peripheral which is intended to operate in 'real time' is likely to use DMA channels.

Like IRQs, DMA channels require unique access to a given channel. DMA channel sharing is not as much of an option as IRQ sharing - ask anyone who has a tape backup device that has clashed with a network card on DMA 1. Lockups are spectacular, but tend not to occur at boot time - they wait until some data has to be moved, and then kill the system, thus possibly trashing data.

Base I/O

Input/Output (I/O) ports are the channels through which the central processor communicates with peripheral devices - disk controllers, interrupt controllers, serial ports, parallel ports, graphics cards, networks, scanners - everything you can think of except motherboard memory. Each port, at its most basic, is a one-byte-wide, two-way door between the device and the processor, and can be used as either a data channel or a control signal channel. It's normal for an array of single ports to be used, with the I/O base address being the lowest of the array, some of which are dedicated to moving data, and others to sending and receiving control signals.

When your PC powers up, DOS makes a note of which devices are using what I/O ports, and how each device will communicate with it. If the system manages to get out of step, as you can imagine, absolute chaos will result; a circumstance brought about by two separate devices being allocated I/O ports that overlap. Similar chaos can occur when two expansion devices are inadvertently allocated the same IRQ and both need processor time simultaneously. Which one will get the messages from the processor? Probably neither, and the PC will suffer an immediate lock-up. Thankfully, this usually happens at boot time, whether the clash is IRQ or I/O caused.

Base Memory Address

Every device needs some workspace, and in terms of expansion cards, this is normally assigned from the reserved area of the computer's memory map between 640k and 1024k (1000 - FFFF in Hex - the trailing character is normaly missed out). Again, each base memory address needs to be unique to prevent clashes but, thankfully, this is the area least fraught with diffculties and danger. Fig 4. shows the common addresses of devices occupying the reserved memory space.

Moving on

One of the main problems associated with the XT bus is the lack of IRQ assignments available. As I premised earlier, standard systems with the kind of equipment we're used to today don't leave much room for adding more than one or two expansion

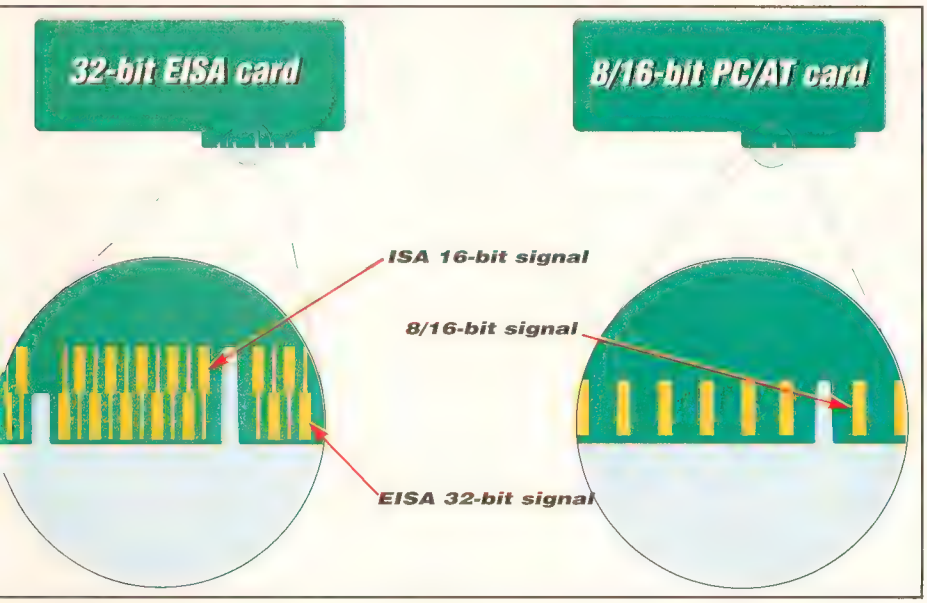

Fig1 XT IRQ assignments. (Bracketed devices may not be fitted to older machines)

Interrupt Request Number (IRQ)	*Standard assignment*
0	*System Timer*
1	*Keyboard*
2	*(Real time clock)*
3	*(COM 2)*
4	*COM 1*
5	*(LPT 2)*
6	*Floppy Disk*
7	*LPT 1*

Fig 2. AT IRQ assignments

IRQ	*Device*
0	*System Timer*
1	*Keyboard*
2	*Redirected to IRQ9*
	EGA/VGA
3	*COM 2, COM 4*
4	*COM 1, COM 3*
5	*LPT 2*
6	*Floppy Disk*
7	*LPT 1*
8	*Real Time Clock*
9	*Redirected IRQ2*
10	
11	
12	
13	*Maths Co-Processor*
14	*Hard Disk Controller*
15	

Fig 3. Standard Base I/O port assignments (Hexadecimal numbers) (the ranges are approximate)

200 to 20F	*Game Port*
230 to 23F	*Bus Mouse*
270 to 27F	*LPT2*
2F0 to 2FF	*COM2*
370 to 37F	*LPT 1*
3C0 to 3CF	*EGA/VGA*
3D0 to 3DF	*CGA/MCGA (also EGA/VGA in colour modes)*
3F0 to 3FF	*COM1, floppy controller*

Fig 4. Standard Base Memory addresses

A000 - BFFF	*Video card (VGA)*
F000 - FFFF	*System ROM BIOS*
C800 - D000	*Hard Disk BIOS (XT RLL & MFM drives)*

cards. AT technology, though, goes some way towards making life easier, or at least, that's the idea. The XT's IRQs were taken care of by a single 8259 Programmable Interrupt Controller chip, which, as we have seen, can handle 8 IRQs. The AT design incorporated a second 8259 which doubled the possibilities. To make life even easier, by maintaining compatibility with the earlier design, the second 8259 accepts a re-direction from IRQ2, essentially freeing IRQ2 for use by XT-type cards. The extended IRQ assignment list for AT and higher class machines is shown in Figure 2.

The AT's bus, which has been re-christened the ISA bus (ISA standing for Industry Standard Architecture) took the XT bus a stage forward. The 80286 processor which powered the IBM AT was a sixteen bit processor, and so IBM gave the AT a sixteen - bit bus - twice as wide as the XT bus, and therefore, you'd think, twice as fast. In terms of the data it could shift, in theory, yes, but in practice, not quite that fast. Given that the original PC had a clock speed of 4.77MHz and the AT began at 8MHz, you would be forgiven for thinking that the AT bus would run much faster than the XT's. That was not the case.

Expansion card makers had designed their products to sit in XTs, and because the extra lines on the AT bus were tacked on to the XT bus, they sat just as well in an AT as they did previously, at least physically. But they weren't set up to cope with higher bus speeds. Many ATs, especially the later models, had programmable bus speeds - I remember one 286 I had for a while that could run its bus at 25MHz - but too many cards refused to work at higher speeds, so, inevitably, the bus was governed back down to XT type clock speeds.

To make the new AT bus, IBM specified the XT bus and added another, slightly smaller, connector that carried the extra signal lines co-linearly with the original connector. Thus, any eight-bit card could sit in a sixteen-bit slot, and only take up the larger of the two connectors. A sixteen-bit card had to have the full sixteen-bit slot - both connectors, unless, like some VGA cards, it was designed to work in either an eight- or sixteen-bit slot. To all intents and purposes, the ISA bus, then, is merely an extension of the XT bus, and older eight-bit cards will work in either type of machine - it's called protecting your investment.

MCA

As machines got steadily faster, users began to get progressively more dissatisfied with the capabilities of the ISA bus - not least because their 32-bit 386 processors were being hampered by a sixteen-bit expansion bus. They wanted more speed - the holy grail of computing. IBM came up with the answer, or at least one of them, with MCA - Micro-Channel Architecture. MCA slots look nothing like ISA slots. They're a different shape and size, and no amount of shoe-horning will make an ISA card fit an MCA slot. MCA is also an intelligent architecture - it maintains a list of the cards in its numbered slots, and can allow a card with a processor on it to take over the bus, a process known as Bus Mastering, which leaves the central processor uninterrupted to get on with the task in hand while the card does its own job. The process is complex, and it has to be said it doesn't always work the way you'd expect it to. That said, MCA is an exceptionally fast 32-bit bus with lots of features to recommend it. Its only problem is that it does not protect any investment in XT or ISA bus expansion cards. If you move to an MCA machine, you must have MCA cards.

That's not altogether satisfactory for many people, which led a consortium of PC manufacturers to specify the Extended Industry Standard Architecture - EISA bus which takes ISA another step forward into the 32-bit bus.

EISA

EISA slots are fully compatible with both XT and ISA cards, but are deeper. In the hidden depths of the slot lie another 90 connection pins (the ISA bus has 98) - investment protected! The EISA specification provides for a maximum speed of 33MB/second of data transfer, compared with the ISA bus' 4MB/second, and, like MCA, true intelligent bus mastering is provided for as well. There are drawbacks to EISA, though. In general, an ISA card will not perform as well in an EISA bus as it will in an ISA bus. We've found that graphics cards, in particular, tend to slow down somewhat in EISA machines. To get ther best out of an EISA bus machine, it's important that the main I/O cards -graphics, hard disk controller and network cards, should be EISA dedicated, then the full benefit of 32-bit, high speed data transfer can be gained. To populate an EISA machine with only ISA bus cards is a total waste, given the premium that an EISA bus costs over an ISA-based machine.

Summary

It really is worth knowing your bus, whether it be XT, ISA, EISA or MCA. With any system, it's worthwhile keeping a log of which IRQ, DMA, I/O ports and base memory addresses are in use - use the tables to help you construct a card you can keep taped to your system box. Then, when you go to fit an expansion card, you will have a list of areas to avoid when configuring the new addition, and clashes should be a thing of the past. Both EISA and MCA tend to do away with the need for this kind of thing, as expansion cards for these busses are more configurable, often in software alone. That said, the advantages the two architectures bring are likely to be outweighed by the cost of implementing them in your PC. *Practical PC* readers are likely to be better served by using the ISA bus and becoming familiar with it.

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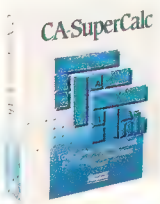

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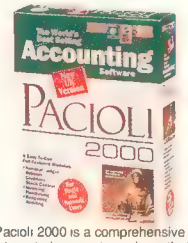

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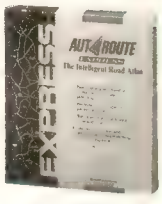

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SNB10D

Sundial

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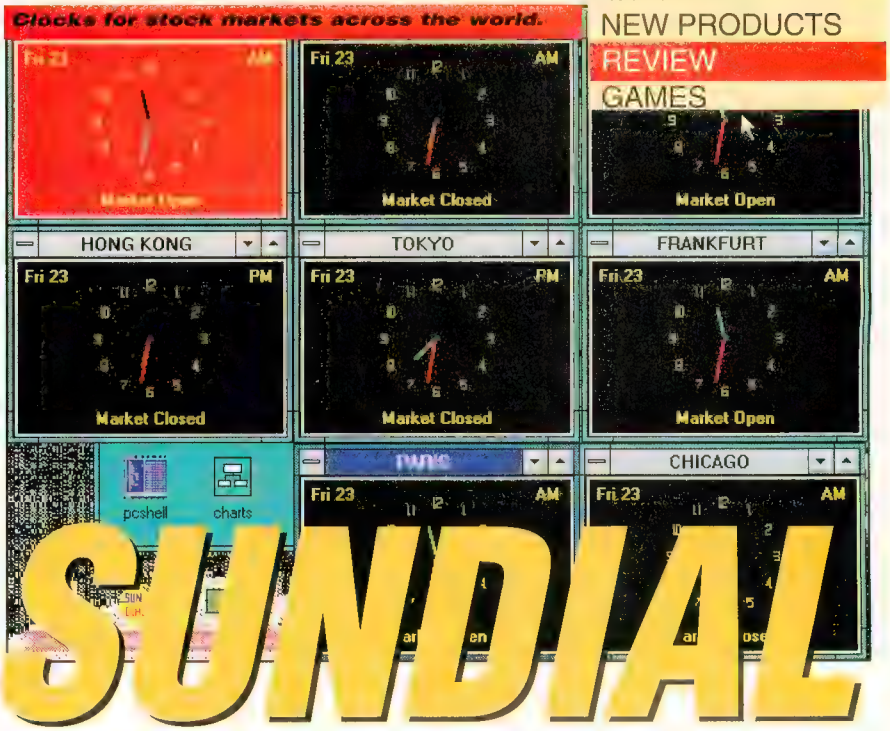
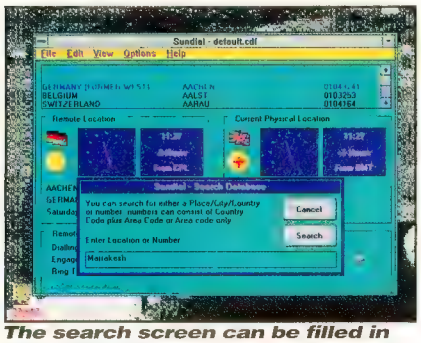


The database contains the dialling codes for over 2,500 locations throughout the world - from Aachen (Germany) to Zyghi (Cyprus). The resultant screen not only gives you the international dialling code for the location specified and, additionally, its country and national flag, an analogue as well as digital clock showing the local time taking into consideration any daylight saving time in operation (like British Summer Time), as well a description of the telephone tones you might expect. The database itself can be searched either by location or by telephone number.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Remote Location
Current Physical Location
Sundial - Search Database
You can search for either a Place/City/Country or number. numbers can consist of Country Code plus Area Code or Area code only
Enter Location or Number
Marrakesh
Cancel
Search

The search screen can be filled in with either location or dialling code.

Investigating the number search facility it became obvious why you should remember to dial 081 for Outer London rather than the old 01. If you dial the 01 first and then, without cancelling, dial 081 you are likely to get a few foul foreign words: the Nissan car worker you have aroused from his slumber is not in Sunderland but in Japan. During our winter months there is a 9 hour time differential between London and Tokyo.

Following up on this trivial pursuit I found that adding 01 to numbers I often dial would result in talking to someone in Alexandria, Egypt, instead of my sister or I could bounce a Czech out of bed rather than gossip to my daughter on the south coast of England.

Away from these entertaining diversions there are serious applications for the software. News agencies around the world would know whether they had missed the deadlines for the morning papers. Financial institutions would know whether the relevant stock market was open or closed. Larger businesses would know whether staff at their subsidiary in Johannesburg should still be at the office. There is a function for displaying several clocks and thee sample CDF accompanying the program is for stock markets. This displays the eight clocks relevant to Paris, Frankfurt, Zurich, Hong Kong, Tokyo, New York, Chicago and London.

Making up your own clock definition file is very simple using the Quick Clocks function provided by either choosing it from the Edit menu or by pressing Control Q. This make a clock of the remote location. It took a matter of minutes to produce a clock file for my friends in Chicago, Gdansk, Madrid, Rome and Vancouver. Clocks within definition files can have different styles - you might use a clock with Roman numerals for Rome, or a background picture (as a bitmap) of cars for Detroit, and a shipyard picture for Gdansk. You can also attach simple messages to the clocks. As an example my 'friends.cdf' file defines 8am to 10pm as reasonable times for friends to be awake and other times as being asleep. The messages like the clocks themselves can be indivially defined to take into consideration differing lifestyles.

One of the advantages for travellers is that the software allows the easy change of current physical location. If you were on a trip taking in Frankfurt and Hannover you may start from London with Frankfurt as your first remote location. On arrival at Frankfurt pressing F2 will make that your current location then search for Hannover and it will give you the correct dialling code within Germany, and further searches will give you the international code to dial your office in the UK.

On the beta test version I saw there was an omission: no towns in France, except Paris, were listed in the database. There is a very good reason why no dialling codes are shown: there are no area codes in France; all telephones have an 8-digit number. In the release version major French towns will be listed together with a message pointing out this quirk of the French telephone system.

There are a couple of extras I would like to see in future versions. One is to have a listing of local business/banking hours, and the other to recognise the variety of public holidays around the world.

The hardware requirements to run Sundial are quite substantial. I was able to run it on a fast 286 machine with 4Mb memory - but it loaded slowly and had to be minimised for anything else to run alongside. A faster processor does iron out all these wrinkles. That being said there must be a large market for business travellers with XT and 286 notebooks. Perhaps this is a cue for a similar DOS-based product which needs less sophisticated hardware.

FAX BOX

- **Product:** Sundial (Beta version)
- **Price:** £49.95 + VAT (RRP)
- **Publisher:** WSA Consultancy
- **Tel:** (0920) 444 217

Ease of Use 85

Versatility 62

Speed 72

Verdict 70

✓ User friendly & excellent graphics

✗ Needs at least a 386 machine

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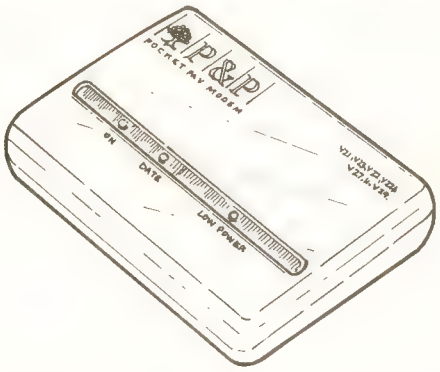

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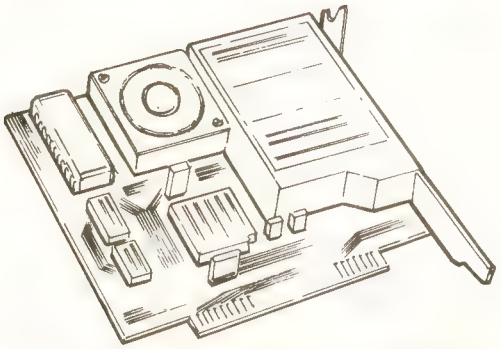

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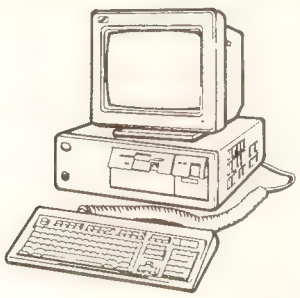

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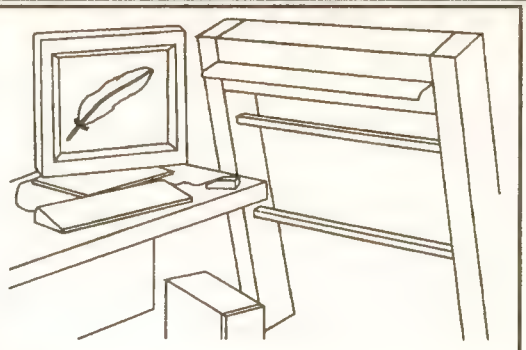

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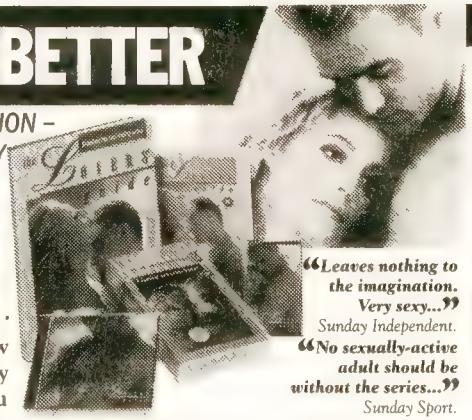

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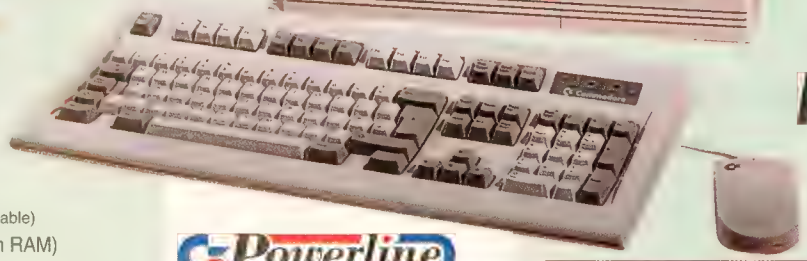

CPU PERFORMANCE COMPARISON CHART

	386SX 16MHz	386SX 20MHz	386SX 25MHz	386SX 33MHz	386DX 33MHz	386DX 40MHz	486SX 16MHz	486SX 20MHz	486SX 25MHz	486DX 33MHz	486DX2 66MHz
LANDMARK v2.0	20 MHz	25 MHz	31 MHz	47 MHz	51 MHz	66 MHz	54 MHz	67 MHz	84 MHz	111 MHz	221 MHz
POWER METER MIPS v1.5	2.23	2.60	3.3	6.9	7.9	9.6	7.1	8.7	11.0	14.7	23.3

For 25MHz and below, performance is quoted with no secondary cache
For 33MHz and above, performance is quoted with secondary cache.

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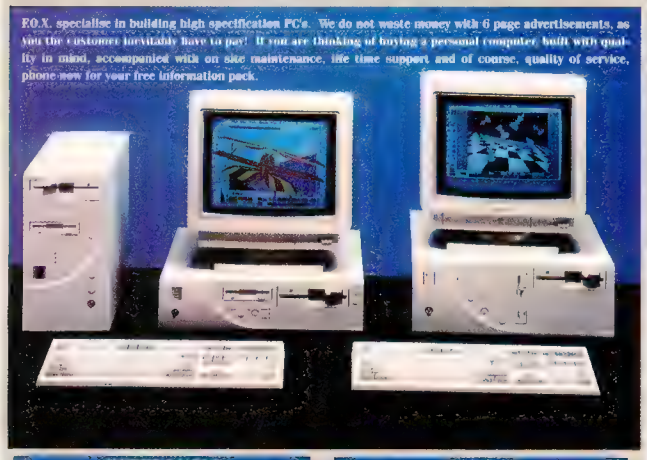
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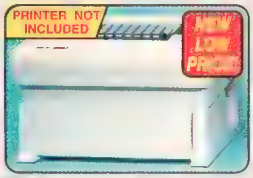

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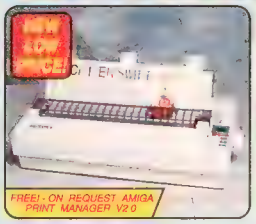

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Which computer(s), if any, do you own? 55M

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APPROVED for connection to telecommunication systems specified in the instructions for use subject to the conditions set out in them

PROHIBITED from direct or indirect connection to public telecommunication systems Action may be taken against anyone so connecting this apparatus

Established in 1988, Datatech Systems is the leading modem and fax - modem specialist. We are authorised dealers for the leading modem manufacturers, enabling us to give full technical support. Carrying large stocks enables us to offer next day delivery to the UK and a three day service to Europe. Not being tied to one modem company allows us to offer true non biased advice and unbeatable prices !

All our modems are designed for UK and International use and will enable you to access on-line services like Compuserve, CIX, Phonebase and BBS's.

If you want an internal or external modem you won't find a higher specification unit than the MX2400, featuring com port 1-4, 100% Hayes compatible, on board (adjustable) speaker complete with a powerful software package featuring power scripting and MNP 5 data compression.

		PC Half Card	External Desktop	External Portable	V23	V22bis	V32	V32bis	MNP 5	V42	V42bis	Fax send (bps)	Fax receive (bps)	FCC Approved	BABT Approved	Warranty (years)	Maximum data throughput in bps
MX2400	£59	X				X			S					X		5	4800
MX2448	£79	X				X			S			4800		X		5	4800
MX2400-5	£99	X				X			X					X		5	4800
MXE2400	£94		X			X			S					X		5	4800
MXE2400-5	£104		X			X			X					X		5	4800
PM2400	£95			X		X			S					X		5	4800
PM2400-5	£105			X		X			X					X		5	4800
ZX2496	£99	X				X			S			9600	9600	X		5	4800
ZX2496-E	£129	X				X			X	X		9600	9600	X		5	4800
ZX2496-P	£179	X		X		X			X	X	X	9600	9600	X		5	9600
9600S	£229	X			X	X	X		X	X	X			X		5	38,400
1496i	£239	X			X	X	X	X	X	X	X	14,400	14,400	X		5	57,600
1496E	£259		X		X	X	X	X	X	X	X	14,400	14,400	X		5	57,600
WS3000 Miracom	£145		X		X	X									X	5	2400
2400S +Omnitel	£199		X		X	X			X	X	X				X	2	9600
Miracom V32	£385		X		X	X	X		X	X	X				X	5	38,400
Miracom D/S	£595		X		X	X	X	X	X	X	X				X	5	38,400

V23 = 1200/75bps, V21 = 300bps, V22 = 1200bps, V22bis = 2400bps V32 = 9600bps V32bis = 14,400bps MNP 4 = error correction MNP5 = 2/1 data compression V42 = CCITT error correction V42bis = 4/1 CCITT data compression All modems V21/V22/Bell 212/Bell 103, Hayes compatible, auto answer, auto dial (pulse & tone) and have monaitor speaker S = Software error correction. Our non BABT approved units are designed for international use, including the UK. All modems supplied with RJ11/BT lead

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The 1496i is 'the' high speed modem card featuring the latest CCITT V32bis standard with a maximum data throughput of 57,600bps ! State of the art technology is incorporated into this unit, low power circuitry for laptop use, advanced digital filtering, DOS/windows software. IRQ 3-7 for multi board setup and includes high speed 14,400bps send and receive fax ! The smart external version has dum/smart mode operation plus dial back security feature for the ultimate in modem technology.

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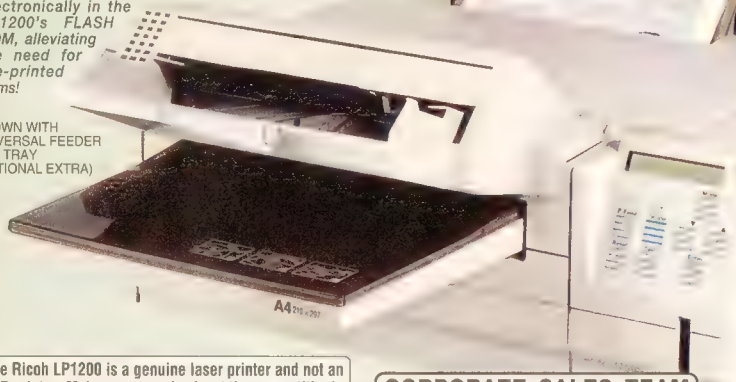
RICOH PCL5 LASER PRINTER

Ricoh UK Ltd is part of the worldwide Ricoh Group of companies, originally established in Japan, in 1936. With a turnover of over $5 billion and 37,000 employees, Ricoh have been producing computers and peripherals since 1971 and are the world's second largest manufacturer of Laser Printer engines. Ricoh have employed their expertise to produce a 'first' in laser printers for the world market, the LP1200 with FLASH ROM.

Fully HP LaserJet III™ compatible, the LP1200 employs industry proven laser technology. Unlike LED page printers, which use light emitting diodes, the LP1200's laser lightsource, focussed by high quality lenses, is able to produce the most accurate and intense printed images. Its fast, efficient processor and engine, together with a straight paper path design, allows printing at a full 6 pages per minute. Unlike its competitors, the LP1200 can print an A4 page of graphics at 300dpi with its standard memory. Also, Ricoh's advanced laser engine enables the LP1200 to address a range of print resolutions up to 400dpi. The standard 2Mb of RAM installed allows the LP1200 to print a full A4 page of text using standard internal resident fonts, or an A5 page of graphics, both at 400dpi. A FREE Windows driver supplied enables the Ricoh LP1200 to print a typical page of text at 400dpi from Windows 3 using the controller firmware currently installed on the printer and standard internal resident fonts. A 2Mb RAM upgrade (total 4Mb RAM) is required to print an A4 page of graphics.

Again, unlike the competition, the LP1200 includes a powerful document description language as standard. This language, 'LAYOUT', offers unique opportunities to develop custom-made printing systems. Forms and document templates can be designed and stored electronically in the LP1200's FLASH ROM, alleviating the need for pre-printed forms!



SHOWN WITH UNIVERSAL FEEDER TOP TRAY (OPTIONAL EXTRA)

HP LASERJET III™ COMPATIBLE

400 dpi **2 Mb RAM** **6 PPM**

A4 TEXT/A5 GRAPHICS @ 400dpi • A4 GRAPHICS @300dpi
A 2Mb RAM UPGRADE IS REQUIRED TO PRINT AN A4 PAGE OF GRAPHICS AT 400dpi

FLASH ROM UPGRADEABLE!

PC TODAY BEST BUY — OCTOBER '92
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RICOH LP1200

- **6 PAGES PER MINUTE** *Using a straight paper path*
- **PCL5 - INC HP-GL/2** *With scalable fonts and vector graphics*
- **SHARP EDGED PRINTING** *Ricoh FIAL (Fine Image ALgorithm) enhances resolution*
- **400dpi RESOLUTION** *(Default res. - 300dpi. Will address 200, 240 & 400dpi.)*
- **2Mb RAM AS STANDARD**
- **UNIQUE FLASH ROM** *For controller upgrade and storage*
- **IC CARD SLOT** *(PCMCIA/JEIDA Compatible) For programmable FLASH ROM cards*
- **EXPANSION BOARD SLOT** *For improved connectivity eg. Coax/Twinax, PC-LAN etc*
- **LAYOUT** *Document Description Language*
- **SERIAL + PARALLEL PORTS**
- **1 YEAR ON-SITE WARRANTY** *Next working day response*

FREE! WINDOWS DRIVER

The Ricoh LP1200 is a genuine laser printer and not an LED printer. Make sure you check out the competition!

CORPORATE SALES TEAM
Tel: 081-308 0888 Fax: 081-308 0608

See how the Ricoh LP1200 compares to its Laser Printer Competitors

FEATURES	EPSON EPL4100	HP L/JET IIIP	M'MAN TALLY MT904+	IBM 4029 Model 010	RICOH LP1200
Average Street Price (excl. VAT) (*expected)	£569	£699	£699*	£750	£699
Official RRP (excl. VAT)	£945	£1,179	£1,099	£1,099	£1,195
Maximum resolution in dots per inch	300 x 300	300 x 300	300 x 300	300 x 300	400 x 400
Windows 3 Driver @ 400 dpi	-	-	-	-	YES
Print Speed	6ppm	4ppm	4ppm	5ppm	6ppm
Straight Paper Path	YES	-	-	-	YES
PCL 5 Printer Command Language	-	YES	YES	-	YES
HP-GL/2 Vector Graphics included	-	YES	YES	YES	YES
Resolution Improvement/Enhancement	YES	YES	YES	YES	YES
Standard RAM	0.5Mb	1Mb	1Mb	1Mb	2Mb
Full A4/300 dpi graphics with standard RAM	-	-	-	-	YES
Warm Up Time	<45 secs	<60 secs	60 secs	33 secs	45 secs
First Page of Text Output	<20 secs	<40 secs	34 secs	20 secs	<15 secs
Document Description Language included	-	-	-	-	YES
Flash ROM	-	-	-	-	YES
Upgradable Firmware	-	-	-	-	YES
IC Card Slot	YES	-	-	YES	YES
Scalable Resident Fonts - in HP LJ III Emulation	-	8	8	0	8
Resident Bit-Mapped Fonts	11	14	14	16	14
AGFA Intellifont Scalable Font Technology	-	YES	-	-	YES
HP LaserJet III Emulation Included	-	YES	YES	-	YES
EPSON FX Emulation Included	YES	-	YES	-	YES
IBM ProPrinter Emulation Included	-	-	YES	-	YES
Standard Tray Capacity	100	70	100	200	100
Protective cover on standard tray	YES	-	YES	YES	YES
Cost per copy**	1.65p	2.00p	1.71p	1.64p	1.65p
Min-Max Paper Weight in gsm	60-157	60-105	60-120	60-131	60-157
Able to print on OHP Film	YES	YES	YES	YES	YES
Able to print on card (157gsm - Manual Feed)	YES	-	-	-	YES
Standby -Noise Level	<40dB	31.7dB	<35dB	38 dB	<38dB
Printing -Noise Level	<50dB	43.3dB	<46dB	50 dB	<48dB

**As quoted by manufacturers - 2/4/92

All Trademarks are acknowledged

Consumables + Accessories

CODE	PRODUCT	PRICE Exc VAT
CAB 7500	Cable for PC/ST/Amiga	£8 47
KIT 5200	Laser Starter Kit inc Cable	£12 50
LAA 5238	Universal Feeder (2nd Tray)	£100 00
LAA 5262	2Mb RAM Module	£149 00
LAA 5210	Developer/Toner Cartridge	£65 00
LAA 5225	OPC Cartridge (Drum)	£89 00
LAA 5334	Letter Paper Tray (100 Sheets)	£35 00
LAA 5323	Legal Paper Tray (100 Sheets)	£35 00
LAA 5312	A4 Paper Tray (100 Sheets). . .	£35 00

CALL FOR A FULL PRICE LIST

*Note A4 paper tray is already included in the £699 price. More A4 trays can be purchased to feed different coloured stationery

LP1200 WITH SINGLE BIN & 2Mb RAM SILICA PRICE:

£699

+VAT= £821.33 Ref: LAS 5200

PCMCIA FLASHCARDS ARE AVAILABLE FROM SILICA. THESE ALLOW ADDITIONAL SOFTWARE FONTS TO BE DOWNLOADED VIA A PC.

Silica Systems are pleased to introduce the revolutionary Ricoh LP1200. It has all of the specifications that you would expect to see in today's most technically advanced laser printers, plus a unique additional feature which places it far ahead of the competition - FLASH ROM. This 'Future Proof' technology protects the investment you make when you buy a Ricoh LP1200, as it enables you to keep up to date with new laser firmware developments. FLASH ROM is an area of memory inside the LP1200 which holds the printer's controller instruction firmware. If new firmware is developed, eg an update to the printer's command language, it can be downloaded into this memory. Other manufacturers would require you to buy a new printer! Fonts, macros, graphics and additional emulations can also be stored in FLASH ROM, or on removable, industry standard FLASH ROM IC cards. The new Ricoh LP1200 is the only laser printer to offer this FLASH ROM facility. The LP1200 comes with a 100 sheet A4 paper tray (letter and legal trays also available as extras) and the facility to feed single sheets of paper and card up to 157gsm. An optional extra universal feeder provides the facility to automatically feed up to 150 sheets, from sizes of 98mm x 148mm to 216mm x 356mm in size at weights of up to 158gsm. The universal feeder also feeds up to 15 envelopes, overhead transparencies and labels automatically.

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- **PAYMENT:** Major credit cards, cash, cheque or monthly terms.

Before you decide when to buy your new laser printer, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals or consumables, or help and advice with your new purchase. And, will the company you buy from contact you with details of new products? At Silica Systems, we ensure that you will have nothing to worry about. We have been established for almost 14 years and, with our unrivalled experience and expertise, we can now claim to meet our customers' requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now for our latest FREE literature and begin to experience the "Silica Systems Service".

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Which computer(s), if any, do you own? 75L

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PPC 02/93

If you can't use this new computer in 5 minutes, you'll get your money back.*

The new Amstrad Notepad Computer couldn't be easier to use because you simply follow the instructions on the screen as you go along.

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Press yellow and blue to use the address book or the diary clock which allows you to set the alarm. Press yellow and green for the calculator and so on. And, when you want to stop using any of these features, guess what, you press 'stop'.

It has a full size keyboard and yet the overall size of the Amstrad Notepad is only A4. It comes with four AA batteries which last up to 40 hours, as well as a mains adaptor. And it weighs less than a kilo.

So now when someone asks you if you can use a computer, say yes, the Notepad Computer from Amstrad.

And, if you need to know more, phone (0277) 262326

Amstrad Notepad £199.99 RRP

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*To obtain a refund in exchange for the unit, it must be returned in mint condition to the original participating retailer within 5 days of purchase, together with all supplied accessories, receipt and its original packaging. RRP correct at 1/9/92 but may change without notice. Product subject to availability. Software subject to licence. © September 1992 Amstrad plc. All rights reserved.

Practically Speaking

PRACTICALLY SPEAKING

Speak out! Have your say in Practical PC's letters forum. Anything goes, of course, so get your pen to paper.

SIR Anniversary

I should like to congratulate you on an excellent magazine. I have been reading your magazine from issue 1 and in my humble opinion it is the very best, and continues to improve with each issue. Please keep up the good work.

However, I do have one request. Can you please spare a thought for us poor mortals who do not have a machine capable of operating in the Windows environment. Please can we have more items of a non-Windows bias. Now don't get me wrong, I have nothing against Windows it's just that I only have a 286 machine and I cannot afford to buy a new 386 or 486 machine and besides even if I could the wife would kill me, you see she bought me the 286 as an anniversary present.

I do not know of any man brave enough to dispose of an anniversary present from his wife.

Why don't I upgrade the 286 you might say? Well, unfortunately the 286 my wife bought for me was an Olivetti PCS286 and everybody tells me they cannot be upgraded.

So please give us lowly 286 owners more non-Windows items. Oh and if you should hear of a way to upgrade a PCS286 please print it in your excellent magazine.

P A Lawrence, Essex

PPC Don't chance upsetting your good lady! (By the way, we've copied your letter and all us old married men have shown it to our spouses, just on the off chance.) We review as much DOS-based software as we can, but there seem to be more and more Windows packages being released and fewer and fewer DOS packages. In fact, we'd like to use this as an opportunity to appeal to software houses producing DOS software to get in touch and send their products for review. As for your Olly - with the right amount of RAM it can quite happily run Windows 3.1, and performing a RAM upgrade is not too difficult - perhaps you might like to get in touch with the Olivetti User Group, who will be better placed to advise youre upgrades. Their contact information appeared in the November issue.

Stac of Trouble

SIR I read with great interest. your review on Stacker 2.0, August issue *Practical PC* . My 42MByte hard disk is nearly full and it seemed an easy solution to install Stacker.

I set to work with the Yellow Pages to find that most local software dealers had either never heard of it, or grimly warned that they did not recommend the programme as they had had many instances of programmes on the hard disk failing to run, and, in certain cases, corrupting the hard disk!

I did find one company willing to order the package but they insisted that I buy the harware and software versions, ie, a total of £258 plus VAT, payable in advance!

I also found a company willing to upgrade my hard disk from 40 to 105 MBytes Seagate drive for less! For curiosity, I telephoned Stac UK and confirmed that software does actually come with the hardware version, in other words the cost is as stated in Practical PC Also because my machine is the 286 version then the hardware version was a necessity. However they took some minutes, at peak call rate, to decide that the only stockist within a sensible distance was on Mersea Island, about 60 miles away. I was told that Stac UK could supply direct but only as a last resort!

The contact telephone number given to was unobtainable, the operator listened and informed me that it was disconnected! A telephone number quoted in the Yellow Pages turned out to be a fax machine. All firms contacted through the adverts in *Practical PC* did not stock the hardware version and were not willing to obtain a one-off request.

Not surprisingly, I gave up and purchased the hard disk upgrade option. If firms are making it so difficult to purchase their products, it is no wonder they lose customers!

P.Stonebridge, Ipswich

PPC We're sure Stac UK will be sorry to hear it lost a potential customer, but, as the review you mention suggested, the course of action you have finally settled on is probably the most sensible in money terms.

SIR Rocky Bottoms

I greatly enjoy reading your magazine and find the articles useful and informative. However, I sometimes wonder if the software corporations you talk to are the same ones that deal with the public!

Following your article "Changing up" in November's issue, I contacted the WordPerfect Corporation (on the number you quoted) to ask about competitive upgrades as I was seriously thinking of changing to their product. I was greeted by a bored and totally disinterested salesperson who said: "We don't really go in for that. The only one we are doing at the moment is for Displaywrite products and that's about to end."

When I enquired the price for this upgrade she quoted £120 - hardly a "rock bottom price" when I have seen Wordperfect 5.1 advertised via a software merchant at £165! Do WordPerfect really want to attract new users?

Dr Stella and C. F. Blackburn, West Sussex

PPC As we said in that article, competitive upgrade offers are something you need to look out for if you're thinking of moving to a new product. However, they are usually only available for a limited period, and you have to have one of the products that the offer concerns. They are, after all, seeking to move users away from a competing product to their own.

Practically Speaking

SIR Dog Star

I have purchased Practical PC for the first time today and have found it to be of special interest because in the Lyndhurst West column I found some information that I had been seeking for about eight months. The information concerns the original Sirius PC, which is what I am writing this letter to you on with the help of the MS DOS 1.25 and Wordstar 3.21 (that shows its age).

The PC was given to me and I have found it to be useful but through reading your magazine I realise that there are many better PC's about today. There is one big snag connected with it and that is I do not have the relevant manual for the machine. The PC has a hard disk and a floppy disk but I suspect that there is a fault on the floppy drive because at present I cannot transfer information to it or from it.

I shall continue to buy your magazine but may I enquire through your letters page if you could give me any more information regarding the Sirius 1 PC or where I could contact to obtain more information about the machine I have.

A W Holmes, Nottingham

PPC ***Mike Hannah-Witherden, the Lyndhurst West columnist suggests you contact Victor on 081 897 6565 - two of their chaps, Neil Douglas and Murray Smith are better than au fait with the Sirius, since Victor produced Sirius-alikes.***

SIR First Class

It was interesting to read your Golly, Olly! letter in issue 7 and, as a Commodore PC-1 user, I'm writing so as not to feel left out. The Commodore PC-1 has been a faithful and very reliable companion for the past three years. It's taken me through the final two years course work with the Open University to Honours - First Class.

In 1990 it was used mainly for writing TMA's for the wonderfully interesting A353 Art in Fifteenth Century Italy course. The printer was a Panasonic KX-P1124 dot-matrix and, using Protext, did a very good job, mainly using the Courier font which gained high praise from the Tutor for clear presentation. The Hercules Samsung amber monitor is rock-steady and good for careful text editing - far better than CGA or any other average mono screen. There's no hard disk but an internal standard 5.25" 360k and external Cumana 3.5" 720k are very reliable and quiet, and only spin when the led comes on - therefore no fan on the go, non-stop!. You need only a cool head to write good essays plus the little 8088 chips running, as INFOPLUS has it, like a (wait for it) 2Mhz AT!

Well, you can't expect much more from an 8-bit bus. However, for normal word processing it hardly matters: the CPU is always waiting for you to think of the next words, or make up your mind about corrections.

In 1991 the PC-1 excelled itself and coped with all the programming needed to complete M205 The Fundamentals of Computing course. At first it seemed doubtful that only 512k would be enough but it certainly was and out rolled some fairly long listings of UCSD Pascal source code some 20 pages of A4 or more. But it was the lack of graphics in this version of Pascal and, in particular, the non-GUI Editor which made it possible.

The PC-1 is still in use, right alongside its big brother, a 16Mhz 286 with 4Mb Extended memory and running Windows 3.1 and Dos 5.0. I bought Microsoft QuickPascal and, after getting bogged down with the QuickPascal Editor with all its graphics Menus and Help screens discovered the amazing virtues of using a plain ASCII text editor and very fast Command line compiling - and using a RamDrive. This method is almost as fast as the 286 from the hard disk.

So Golly! Can any Oli Wallie PC-1 beat the performance of my little Redoubtable Commodore PC-1?

Ian R. Gay BA(Hons), Eastbourne

PPC **Do we detect a touch of bias here? We won't mention the legions of books that were written on Sinclair Spectrums and Amstrad PCWs and Commodore 64s(grin)! It does seem that your Commode has performed sterling service over the years, and we've no doubt that more stories of out-of-fashion machines' fantastic exploits will wing their way to us.**

SIR Mousechief

Please keep up the good work with your magazine, definitely the best computer issue on my local bookshop's shelf.

Could you please tell me what to add to my AUTOEXEC.BAT file so that when I boot up my computer the mouse is ready to use. At the moment it is in its own directory, and to get it to run I have to enter:

```
cd\drgenius
drgenius
init
```

I have an Epson EL2 (640k RAM), 20MB hard disk (compressed to about 40MB) and VGA monitor.

Tom Valentine, Angus

PPC **No sooner asked than answered. The lines you need to enter in AUTOEXEC.BAT are exactly those you would type in to start your mouse driver as you have been doing. I would suggest that you put a line before them with C: on it, just to be sure you are in the C: drive.**

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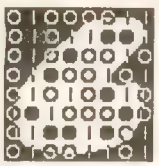

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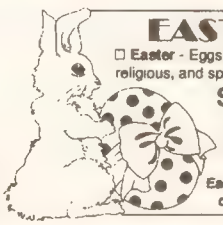

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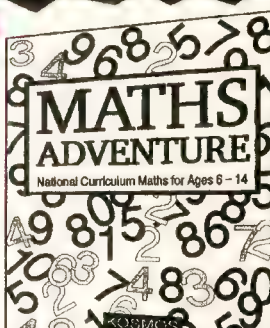

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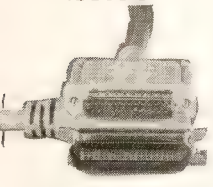

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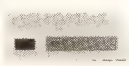

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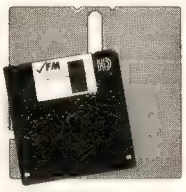

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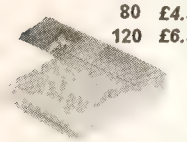

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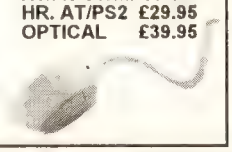

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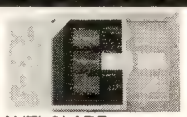

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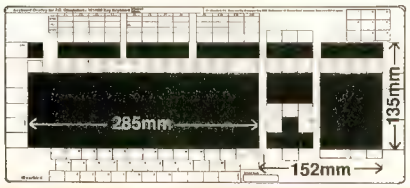

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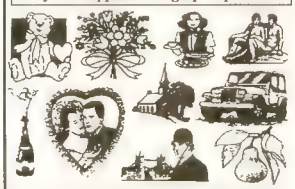

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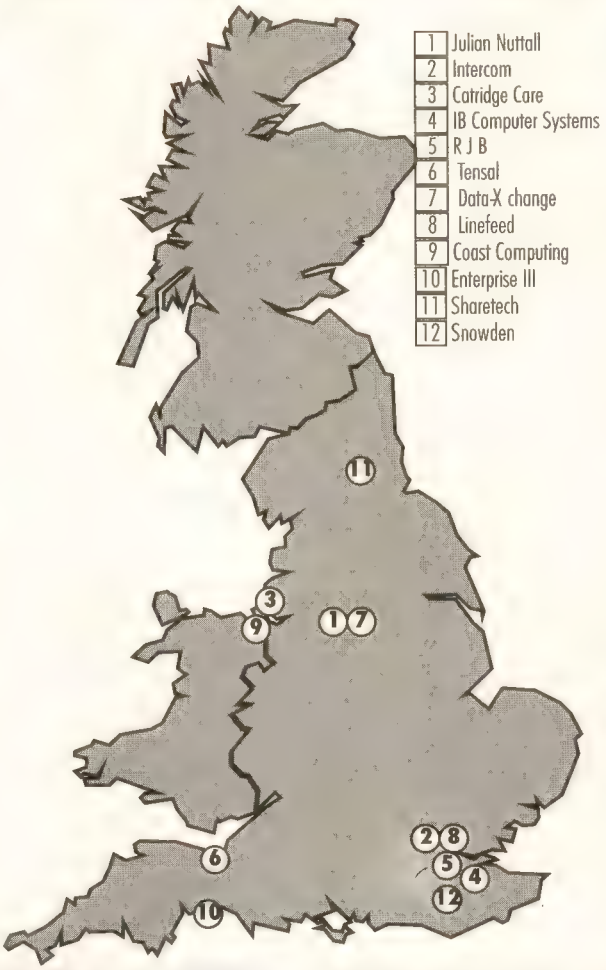

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March Issue

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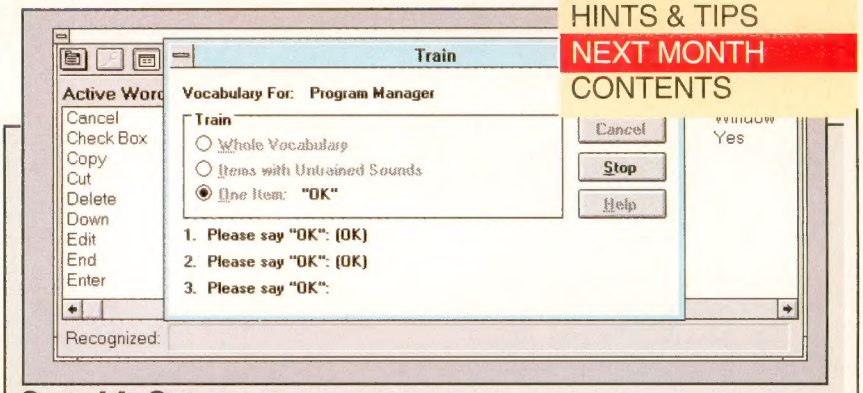
HINTS & TIPS
NEXT MONTH
CONTENTS

Multi Media

- **Multi-Media Media** *ST's Media-V is a video card with a difference - Neighbours on your PC?*
- **Multi-Media Machine** *Royale's Multi-Media ready PC is available. Does it sound as good as it looks?*
- **Multi-Media Upgrade** *Compro's answer to Westpoint Creative's sound and CD bundle is 16 bit all the way. Sample this!*



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Network Cards

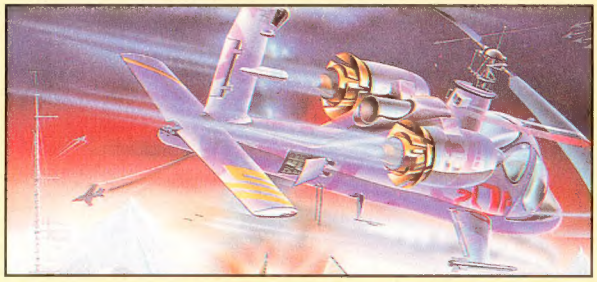
Personal Networks are about to take off - so don't get left behind. See our step-by-step guide to fitting a low-cost network card.

Computer Aided Design

Do you occasionally need to draw plans? Sit using paper and ink? Let your PC help with our guide to the technical side of drawing! Computer Aided Design (CAD) has never been so easy.

Music Machine

Final part of the series in which we assemble our music machine and put it to the test.



Armour-Geddon

This a post-holocaust world and a power crazed entity wants control of earth... coming next month.

Make Mine Multimedia

A step-by-step guide to adding an internal Phillips CD-ROM drive to your PC.

Quickies

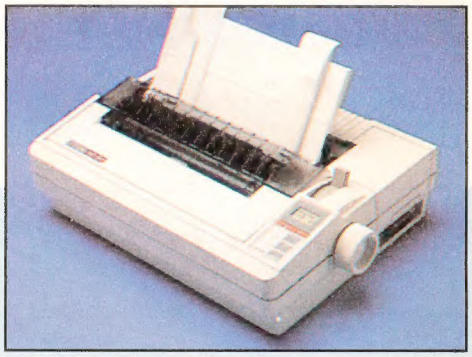
Another selection of short, sharp product reviews. Next Month we have a space adventure and show you how to link database and spreadsheet data to a map of the UK.

PC MASTER SOUND

The Sampler allows you to bring Audible Analogue Sounds to your computers

Boom Box

This hip music program transforms your PC. It lets you scratch and screen your own "totally Def" arrangements.



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Lynne Patterson tries her hand at colour printing with a new 24-pin dot matrix printer from Citizen.

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